

# Service Manual

## Optic Touch Panel



Touch Panel TY-TP42P8-S/TY-TP50P8-S

**TY-TP42P8-S**  
**TY-TP50P8-S**  
**TY-TPEN6 (Option)**



Touch Pen TY-TPEN6

## Specifications

### Power Source

Voltage	DC + 5V ± 10 %
Electric current	DC + 5V Max 400 mA
Supply system	from USB Bus Power (DC + 5V Max 500 mA)

### Touch Panel

Detection system	Infrared obstruction detection system	
Panel window (W × H)	945.2 mm × 531.2 mm (37.2" × 20.9") (TY-TP42P8-S)	1129.2 mm × 645.2 mm (44.4" × 25.4") (TY-TP50P8-S)
Detection range (W × H)	920 mm × 516 mm (36.2" × 20.3") (TY-TP42P8-S)	1104 mm × 620 mm (43.4" × 24.4") (TY-TP50P8-S)
Effective detection range	Detection range + 1.0 mm (0.04") at the top, bottom, left and right	
Operating modes	Detection operation at input point, during initial movement and at end point *1	
Resolution (W × H)	1,841 × 1,033 *1 (TY-TP42P8-S)	2,209 × 1,241 *1 (TY-TP50P8-S)
Detection pitch	2.0 mm × 2.0 mm (0.08" × 0.08")	
Output system	Coordinate output	
Number of optic elements (W × H)	231 × 130 elements (TY-TP42P8-S)	277 × 156 elements (TY-TP50P8-S)
Optic element pitch (W × H)	4.0 mm × 4.0 mm (0.16" × 0.16")	

Minimum stylus size (W × H)	6.0 mm × 6.0 mm (0.24" × 0.24")	
Scan speed	Initial touch: 30 ms/frame max.; during movement: 8 ms/frame max.	
Touch pen	Infrared system	
<b>USB Interface (USB 1.1)</b>	<b>Terminal No. and Signal name</b>	
	(TYPE B)	
	No.1 Vcc	No.2 -DATA
	No.3 +DATA	No.4 GND
<b>Temperature</b>	When operating 0°C (32°F) to 50°C (122°F) (temperature gradient 25°C (77°F)/hr max.) *2	
	When not operating: -20°C (-4°F) to 60° (140°F) temperature gradient 25°C (77°F)/hr max.	
<b>Humidity</b>	When operating: 20% to 85% (must be no condensation) *2	
	When not operating: 10% to 95%	
<b>Resistance to extraneous light</b>	Lateral light: 2,000 lux MIN +20% (angle of incidence: 20°)	
	Frontal light: 10,000 lux MIN +20% (angle of incidence: 90°)	
<b>Panel form</b>	Flat panel (Flat type)	
<b>External dimensions (W × H × T)</b>	1,073 mm × 659 mm × 69 mm	1,257 mm × 773 mm × 69 mm
	(42.2" × 25.9" × 2.7")	(49.5" × 30.4" × 2.7")
	(Excluding mounting brackets)	(Excluding mounting brackets)
	(TY-TP42P8-S)	(TY-TP50P8-S)
<b>Weight</b>	5.0 kg (11 lbs) Excluding mounting brackets	5.8 kg (12.7 lbs) Excluding mounting brackets
	(TY-TP42P8-S)	(TY-TP50P8-S)
<b>Extruded material</b>	Aluminum	

**Notes:**

\*1 When it is used with exclusive driver software.

\*2 This applies to the touch panel alone. When the panel is attached to a device such as a PDP, follow the environmental conditions for the device being used.

## ⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

# CONTENTS

	Page		Page
<b>1 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices</b>	<b>4</b>	8.7. X-LED1, X-LED2, X-LED3, Y-LED1, Y-LED2 Board (50inch)	41
<b>2 About lead free solder (PbF)</b>	<b>5</b>	8.8. X-LED3 Board (42inch)	42
<b>3 External dimensions</b>	<b>6</b>	8.9. X-LED4 Board (50inch)	43
<b>4 Setup for Touch Panel</b>	<b>7</b>	8.10. Y-LED2 Board (42inch)	44
<b>5 Touch Pen (Option)</b>	<b>21</b>	8.11. Controller Board (42inch)	45
<b>6 Printed Circuit Board Structure</b>	<b>22</b>	8.12. Controller Board (50inch)	46
6.1. TY-TP42P8-S	22	8.13. Pen-Receive Board (42inch)	47
6.2. TY-TP50P8-S	23	8.14. Pen-Receive Board (50inch)	48
<b>7 Trouble shooting</b>	<b>24</b>	<b>9 Block Diagram</b>	<b>49</b>
7.1. Checking procedures	24	9.1. Overall Block Diagram (TY-TP42P8-S)	49
7.2. Test Program	26	9.2. Overall Block Diagram (TY-TP50P8-S)	50
<b>8 Conductor Views</b>	<b>35</b>	9.3. Detail Block Diagram (1 of 3)	51
8.1. X-Photo1, X-Photo2, Y-Photo1 Board (42inch)	35	9.4. Detail Block Diagram (2 of 3)	52
8.2. X-Photo1, X-Photo2, X-Photo3, Y-Photo1, Y-Photo2 Board (50inch)	36	9.5. Detail Block Diagram (3 of 3)	53
8.3. X-Photo3 Board (42inch)	37	<b>10 Schematic Diagram</b>	<b>55</b>
8.4. X-Photo4 Board (50inch)	38	10.1. Controller Board Schematic Diagram	55
8.5. Y-Photo2 Board (42inch)	39	10.2. X-Photo 1 Board Schematic Diagram	56
8.6. X-LED1, X-LED2, Y-LED1 Board (42inch)	40	10.3. X-Photo 2 Board Schematic Diagram	57
		10.4. X-Photo 3 Board Schematic Diagram	58

10.5. X-Photo 4 Board Schematic Diagram (TY-TP50P8-S) .....	59	10.13. Y-LED 2 Board Schematic Diagram .....	67
10.6. X-LED 1 Board and Pen Receive Board Schematic Diagram .....	60	<b>11 Exploded View .....</b>	<b>69</b>
10.7. X-LED 2 Board Board Schematic Diagram .....	61	11.1. TY-TP42P8-S .....	69
10.8. X-LED 3 Board Board Schematic Diagram .....	62	11.2. TY-TP50P8-S .....	71
10.9. X-LED 4 Board Board Schematic Diagram (TY-TP50P8-S) .....	63	<b>12 Replacement Parts List .....</b>	<b>73</b>
10.10. Y-Photo 1 Board Schematic Diagram .....	64	12.1. Replacement Parts List Notes .....	73
10.11. Y-Photo 2 Board Schematic Diagram .....	65	12.2. TY-TP42P8-S Mechanical Replacement parts List .....	74
10.12. Y-LED 1 Board Schematic Diagram .....	66	12.3. TY-TP42P8-S Electrical Replacement parts List .....	75
		12.4. TY-TP50P8-S Mechanical Replacement parts List .....	84
		12.5. TY-TP50P8-S Electrical Replacement parts List .....	85

# 1 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

## Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

## IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  $\Delta$  in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

## 2 About lead free solder (PbF)

### Note:

Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

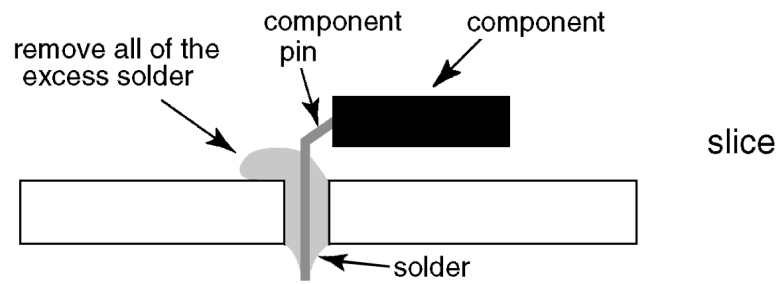
The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

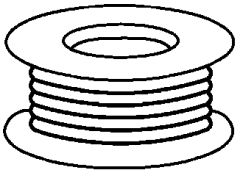
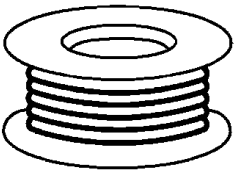
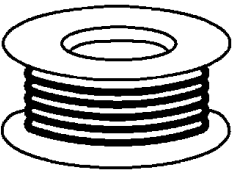
### Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
  - Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).
- If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)



### Suggested Pb free solder

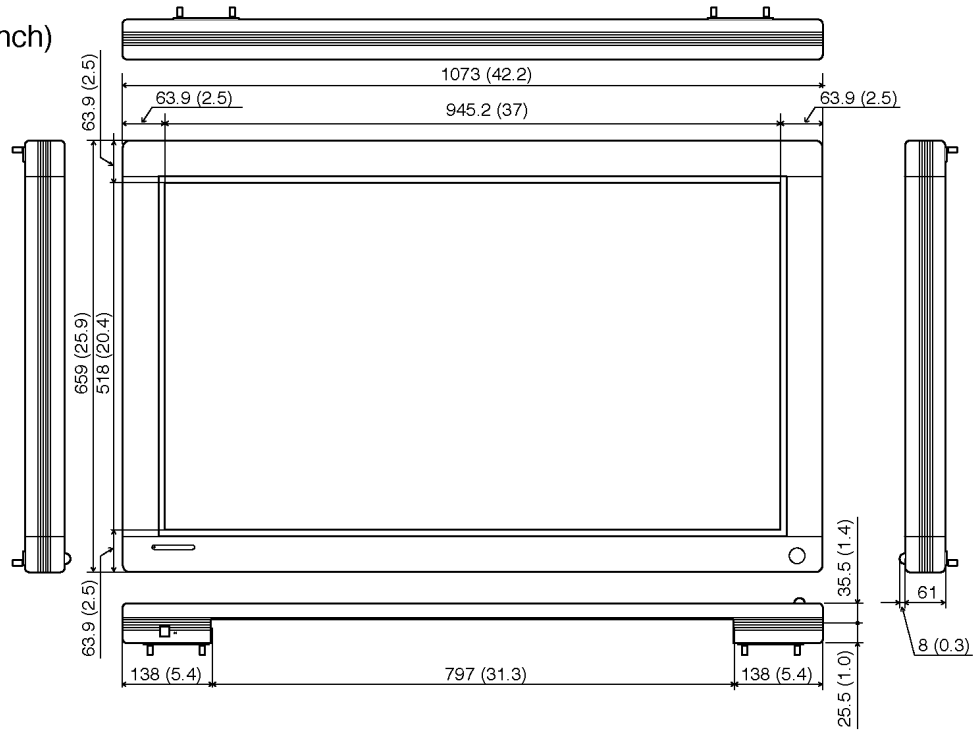
There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm x 100g	0.6mm x 100g	1.0mm x 100g
		

# 3 External dimensions

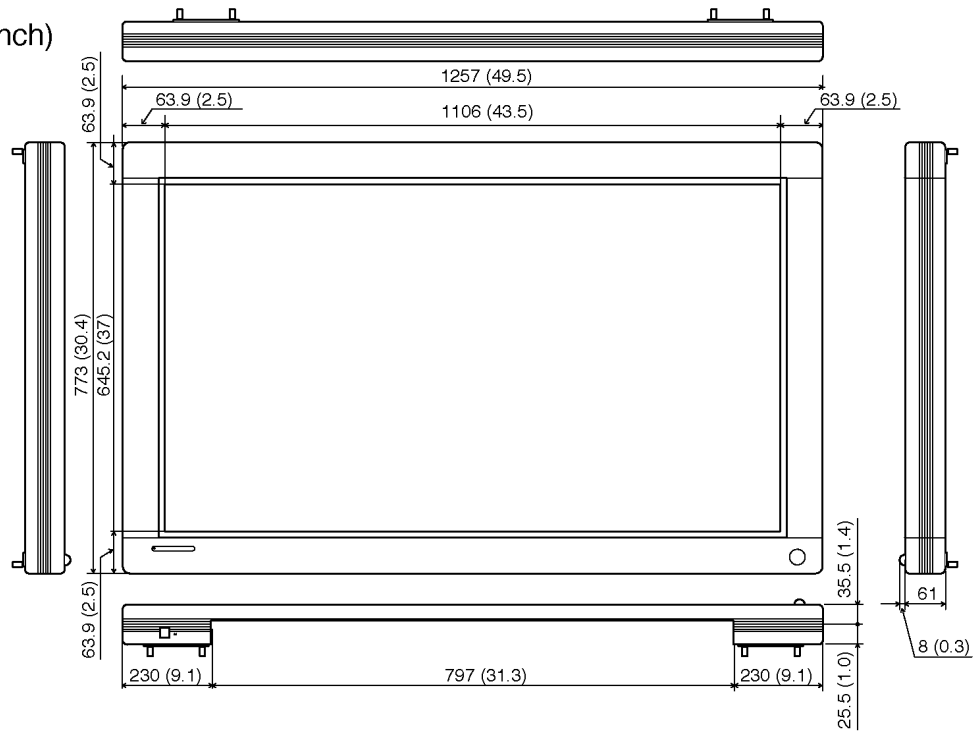
TY-TP42P8-S

Unit: mm (Inch)











TY-TP50P8-S

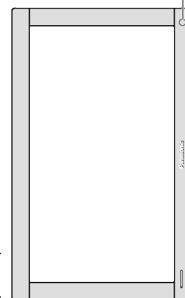
Unit: mm (Inch)



Check that all accessories are included. Quantities are indicated in parentheses.

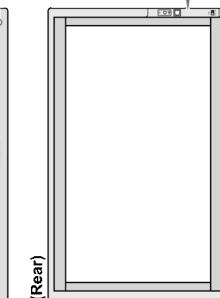
- |                          |                                                                                           |                                                                                     |                          |                                       |                                                                                     |                          |                                          |                                                                                     |                                                                                     |                          |                                                                 |
|--------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|---------------------------------------|-------------------------------------------------------------------------------------|--------------------------|------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------|
| <input type="checkbox"/> | Mounting screws for<br>Mounting brackets<br>[A, B]<br>TY-TP42P8-S (8)<br>TY-TP50P8-S (10) |  | <input type="checkbox"/> | Mounting bracket<br>for USB cable (1) |  | <input type="checkbox"/> | Mounting brackets [C]<br>TY-TP50P8-S (2) |  |  | <input type="checkbox"/> | Mounting screws for<br>Mounting brackets [C]<br>TY-TP50P8-S (4) |
| <input type="checkbox"/> | Mounting screws for<br>Mounting brackets<br>[A, B]<br>TY-TP42P8-S (8)<br>TY-TP50P8-S (10) |  | <input type="checkbox"/> | Mounting bracket<br>for USB cable (1) |  | <input type="checkbox"/> | Mounting brackets [C]<br>TY-TP50P8-S (2) |  |  | <input type="checkbox"/> | Mounting screws for<br>Mounting brackets [C]<br>TY-TP50P8-S (4) |

(Front)



**Light receiver for optional touch pen (TY-TPEN6)**

This is for receiving light signals from the special-purpose touch pen. If this part is obstructed, the equipment will not be able to correctly receive signals. Note that it protrudes, so be careful not to hit it.



**USB connector**  
Used to connect to a USB cable.

**Selection switch**  
ON: Touch pen mode  
OFF: Handwriting mode

## 1 Attachment of the touch panel to the plasma display



## 2 Connection between the computer and the plasma display



### 3 Installation of USB Driver



## 4 Installation of Touch Panel Driver



## 5 Setup Program

## Attachment of the touch panel to the plasma display

### 1 Attach the mounting bracket. [A] (TY-TP42P8-S) Attach the mounting bracket. [B] (TY-TP50P8-S)

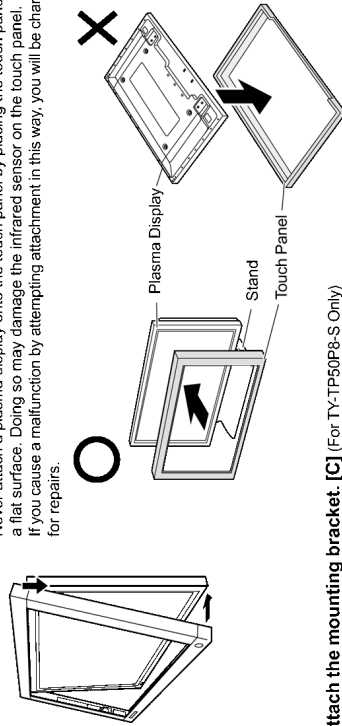
- (1) Orientate the mounting bracket [A] or [B] so that the side lined with cushion faces the touch panel.
- (2) During attachment of the touch panel to the display, lift the bracket to its highest point so that it does not strike the display and tentatively fasten to the display.

### 2 Attach the touch panel to the display front surface.

Be careful not to strike the touch panel on the display.

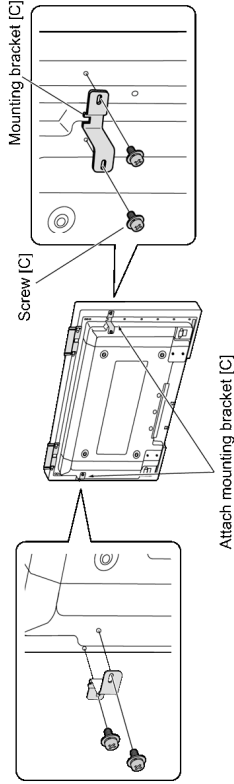
#### Attachment precautions

Never attach a plasma display onto the touch panel by placing the touch panel on a flat surface. Doing so may damage the infrared sensor on the touch panel. If you cause a malfunction by attempting attachment in this way, you will be charged for repairs.



### 3 Attach the mounting bracket. [C] (For TY-TP50P8-S Only)

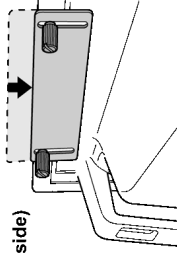
Tentatively fasten a fixing screw in the left and right speaker mounting screw holes on the rear of the touch panel and plasma display to attach the mounting bracket [C].



## Attachment of the touch panel to the plasma display

### 4 Lower the tentatively fastened mounting bracket. (Upper side)

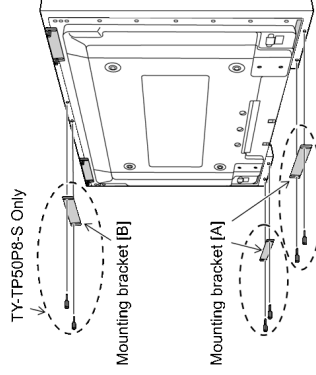
Loosen the tentatively fastened bracket mounting screws, and lower the mounting bracket.



### 5 Fasten mounting brackets. [A], [B]

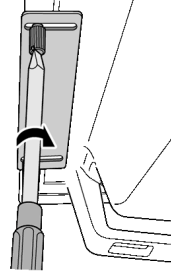
Fasten mounting brackets [A], [B] to the display.

- TY-TP42P8-S  
Mounting bracket [A] (4 points in total)
- TY-TP50P8-S  
Mounting bracket [A] (2 points in total)  
Mounting bracket [B] (3 points in total)



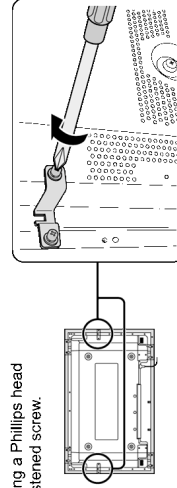
### 6 Fasten the touch panel.

Fasten the touch panel to the display.  
After hand tightening the bracket mounting screws, tighten them further using a flathead screwdriver.  
Fasten so there is no large gap between the touch panel and the display front surface.  
Be careful not to overtighten the mounting bracket screws as this will cause warping.



### 7 Fasten mounting brackets. [C]

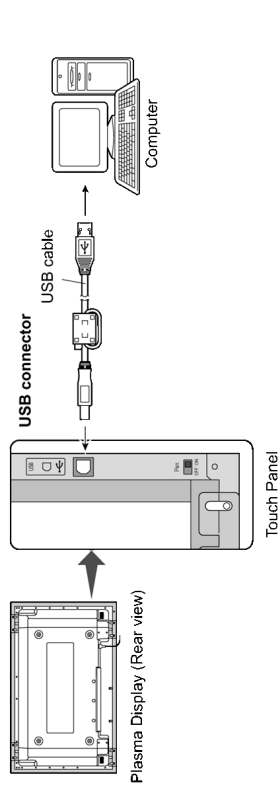
Secure the mounting bracket [C] by using a Phillips head screwdriver to tighten the tentatively fastened screw.





# Connection between the computer and plasma display

## 1 Connection with computer

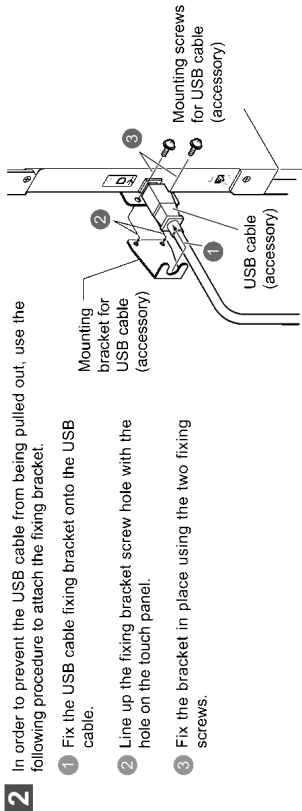


\* Check that the USB power supply of the computer being used is rated at 500 mA.

- (1) Connect the plasma display and computer with the VGA cable.
- (2) Turn on power in the following sequence: 1: Plasma Display, 2: Computer.
- (3) Switch the plasma display input signal to the computer.
- (4) After the computer OS starts up, connect the touch panel and computer with the USB cable.
- (5) Insert the CD-ROM containing the USB driver into the CD drive of the computer, start the install wizard, and install the USB driver software by following the instructions on the screen.

### Notes:

- After the computer OS has finished starting up, connect the USB cable.
- If you connect using a USB hub, you must supply power to the USB hub.
- For details on USB driver software setup, see "USB driver setup." (See below)
- After USB driver setup, you must set up the touch panel driver software.
- If the infrared transmissive part of the screen is accidentally obstructed (such as by your finger) while connecting the USB, an element defect will be detected. If you use the system in that state, it may respond poorly to touch. If this happens, remove the USB cable and insert it again. You do not need to restart the computer.



# Installation of the USB Driver

## Function

The control software provides the following functionality.

- Supplies a software interface for application programs that simulates the output of a mouse. This is achieved by converting touch panel output data into that which is compatible with the protocol used by the Microsoft serial mouse input. This makes it possible to operate existing applications and develop new applications employing the touch panel as if it were a mouse.
- Enables the changing of touch panel operation settings by using the touch panel setting program.

## Operating environment

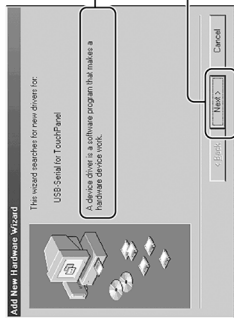
Personal computer	PC/AT compatible machine (DOS/V machine) Models equipped with a USB port and CD-ROM drive
Compatible OS	Windows 98 Second Edition Windows Millennium Edition Windows 2000 Windows XP (Service Pack 1 or later recommended)

- The touch panel and control software can be used simultaneously without mutual interference with any pointing device that does not use the serial port, such as a PS/2 mouse.
- Before installing the control software, the COM port address and interrupts must be set correctly, and the COM port must be operating correctly.
- You cannot use this software simultaneously with applications that use the COM port (such as hyper terminal).
- If you use this software with applications that require large amounts of CPU time (for example, playing movie files), problems may be encountered with their operation, such as missing movie frames or delays in mouse pointer tracking.

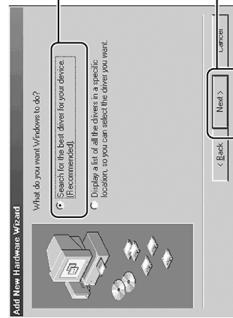
## Installation of the USB Driver

### Install USB Driver

First, PC is started, and then Windows is started.  
The CD-ROM with USB driver software is inserted into the CD-ROM drive.  
Next, touch panel and PC are connected with a USB cable.  
When a USB cable is connected, "Add New Hardware Wizard" is indicated.

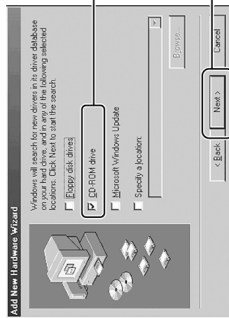


**1** Click on this button.



**2** Next, choose this item.

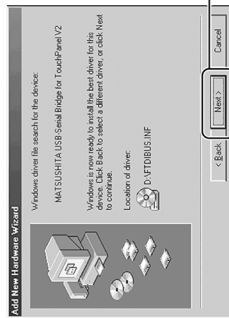
**3** Click on this button.



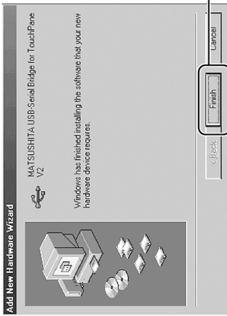
**4** Next, choose this CD-ROM drive.

**5** Click on this button.

The following screen is displayed when the driver file on the CD-ROM is found and is ready to be copied.



**6** Click on this button.  
Then, the driver file is copied and setup.



Setup is completed when all the files of the driver are copied.

**7** Click to close this wizard.

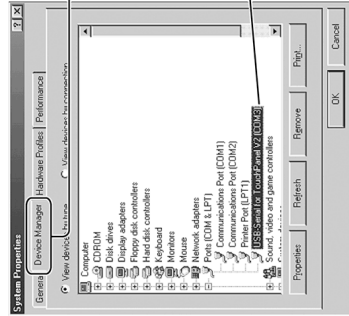
**8** The new hardware window is displayed again, and the driver for the assumed COM port is installed.

### COM port number is confirmed with "Device Manager"

**1** Click on [Start] → [Settings] → [Control Panel].  
Double-click on "the system" icon of the control panel, and open the properties of the system.

The properties of the system are opened.

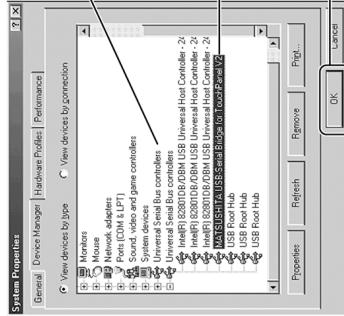
**2** Then click on the "Device Manager" tab.



**3** Double-click "Ports [COM&LPT]". Confirm that "USB-Serial for Touch Panel V2 (COMx)" is found in "Ports [COM&LPT]".

(COMx) is the COM port number for using a touch panel. As for the COM port number, the setup number varies in the use environment of the PC.

**4** Next, double-click "Universal Serial Bus controllers".



**5** Confirm that "MATSUSHITA USB-Serial Bridge for Touch Panel V2" is found in "Universal Serial Bus controllers".

**6** Click on this button.  
The setup of the USB driver is finished.

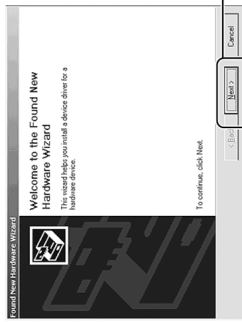


## Installation of the USB Driver

### Install USB Driver



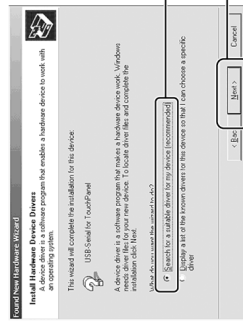
First, PC is started, and then Windows is started. The CD-ROM with USB driver software is inserted into the CD-ROM drive. Next, touch panel and PC are connected with a USB cable.



When a USB cable is connected, it is recognized as a new hardware, and a message is indicated.

Setup Wizard will start.

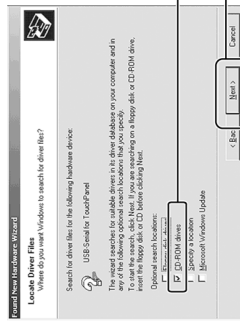
1 Click on this button.



"Install Hardware Device Drivers" is indicated.

2 Choose this item.

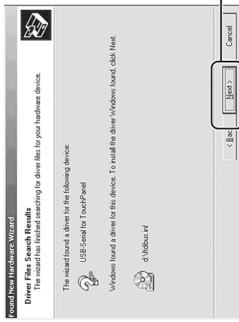
3 Click on this button.



"Locate Driver Files" is indicated.

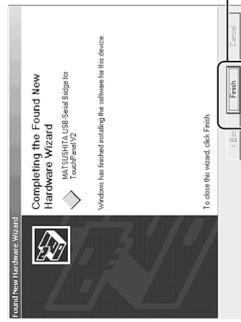
4 Choose "CD-ROM drives".

5 Click on this button.



"Driver Files Search Results" is indicated.

6 Click on this button.



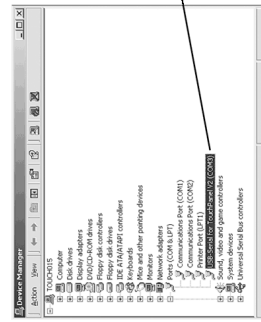
Driver software is set up, and "Completing the Found New Hardware Wizard" is indicated.

7 Click Finish to close this wizard.



8 It is recognized as new hardware once again, and the screen on the left is displayed.

### COM port number is confirmed with "Device Manager"



1 Click on [Start] → [Settings] → [Control Panel]. Double-click on "the system" icon of the control panel, and open the properties of the system.

2 The properties of the system opens, click on the "Hardware" tab. Then click on the "Device Manager" button.

3 Double-click "Ports [COM&LPT]". Confirm that "USB-Serial for Touch Panel V2 (COMx)" is found in "Ports [COM&LPT]".

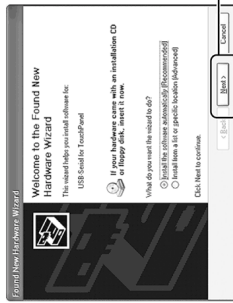
(COMx) is the COM port number for using a touch panel. As for the COM port number, the setup number varies in the use environment of the PC.

The setup of the USB driver is finished.

## Installation of the USB Driver

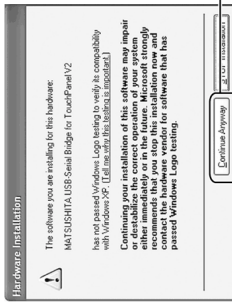
In case of Windows XP

### Install USB Driver



First, PC is started, and then Windows is started.  
The CD-ROM with USB driver software is inserted into the CD-ROM drive.  
Next, touch panel and PC are connected with a USB cable.  
When a USB cable is connected, the wizard of the driver setup starts.

**1** Click on this button.



Next, though the following warning message is indicated, there is no problem.

**2** Click on this button.



A driver file is copied and set up.

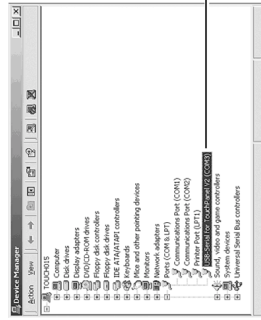


Setup is completed when all the files of the driver are copied.

**3** Click on the "Finish" button to close the wizard.

## Installation of the USB Driver

### COM port number is confirmed with "Device Manager"



**1** Click on [Start] → [Settings] → [Control Panel]. Double-click on "the system" icon of the control panel, and open the properties of the system.

**2** The properties of the system opens. Next click on the "Hardware" tab. Then click on the "Device Manager" button.

**3** Double-click "Ports [COM&LPT]": Confirm that "USB-Serial for Touch Panel V2 (COMx)" is found in "Ports [COM&LPT]".

(COMx) is the COM port number for using a touch panel. As for the COM port number, the setup number varies in the use environment of the PC.

The setup of the USB driver is finished.

## Installation of the USB Driver

### About the COM port

When it is set up, the USB driver is recognized as a COM port of the PC. Specify this COM number when you don't use an automatic connection. The setup number varies in the use environment of the PC.

### Notes for Installation of USB driver

(Windows 2000/XP)  
After the installation of the driver is completed, a new hardware wizard will not be displayed even if a USB cable is re-connected to the PC.  
However, it is recognized as a new hardware, and a setup wizard is indicated when it is connected to a port which is different from the USB port which did the setup of the driver. In this case, cancel the setup, and connect it to the USB port, where the driver was setup.

If you unplug and plug USB cable quickly, the PC sometimes does not recognize it.  
In that case, please reboot PC.

If running Windows XP, the PC may not automatically recognize hardware on insertion or removal of USB cables.  
It is recommended that Windows XP Service Pack 1 (or later) is installed.

## Installation of the Touch Panel Driver

### Install Touch Panel Driver

The CD-ROM contains two different types of control software installers (one for Windows 98SE and Windows ME, and one for Windows 2000 and Windows XP). Start the set-up file corresponding to the OS you are using.

**Note:**  
When a previous version driver software has been installed, first uninstall it and then install the new driver software.

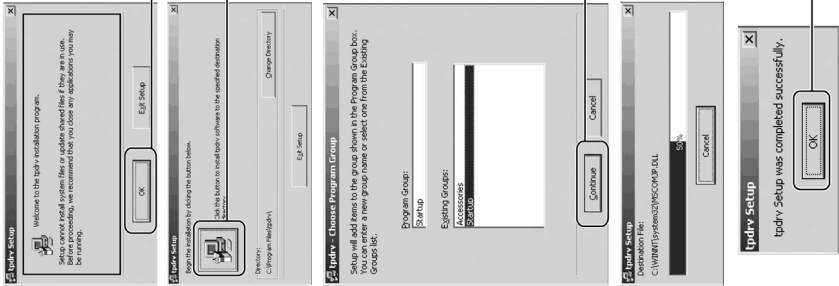
OS	CD-ROM (Installer)
Windows 98SE	I\English\Win9x_me\setup.exe
Windows ME	I\English\Win9x_me\setup.exe
Windows 2000	I\English\Win2k_xp\setup.exe
Windows XP	I\English\Win2k_xp\setup.exe

Load the included CD-ROM into a system CD drive. (We will assume here that this is the D drive.)

- (1) Select [Start] → [Run...].
- (2) In the [Name] field, input "D:\English\Win9x\_me\setup.exe" or "D:\English\Win2k\_xp\setup.exe". (Input the applicable file name for the OS you are using.)
- (3) Click the [OK] button.

The setup program will start.  
1 Click this button to continue.

2 Click to start.



In the default, it is registered as the startup program.  
The driver software will start up automatically the next time the unit is turned on.

The required file is copied.

Installation ends.

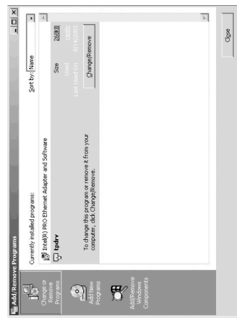
4 Click to end installation of Touch Panel Driver.

Driver software starts when the PC is restarted after installation is finished.

## Uninstallation of the Touch Panel Driver

Delete "tpdrv" from the "Add/Remove Programs" of the "Control Panel".

In case of Windows 2000



- (1) Click on [Start] → [Settings] → [Control Panel]
- (2) Double-click on [Add or delete applications].
- (3) Click on the [Uninstall] tab.
- (4) Select "tpdrv" and click on the [Change and delete] button.
- (5) The file delete confirmation screen will be displayed. Click the [Yes] button. Uninstall will begin.

### Note:

You cannot delete the program using Uninstall if the driver is still running. You must stop the driver program first. This may be achieved using one of the following two methods.

- Delete the "tpdrv" short cut from the startup folder, and restart your PC. Then proceed to uninstall the Setup Program.
- Simultaneously hold down the "Ctrl" + "Alt" + "Delete" keys. In the confirmation display that appears, select both "tpdrv" and "tpmenu" and stop them by clicking on "End Task". Then proceed to uninstall the Setup Program.



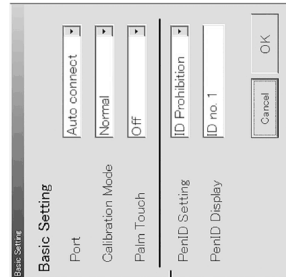
## USB driver software

Load the included CD-ROM into the CD-ROM drive, run the program "Un-Installer.exe" on the CD-ROM, and follow the instructions on the screen to perform uninstall.

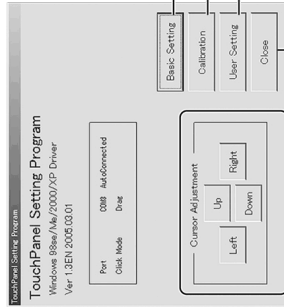
## Setup program

The setup program is to set communication ports and various operation modes and to carry out calibration or so on. Performing setup in the initial state saves the modified contents in "tpdrv.ini" setting file in "C:\Program Files\tpdrv" folder. Those contents are still valid at the time of the next startup.

### Setup of a basic Mode

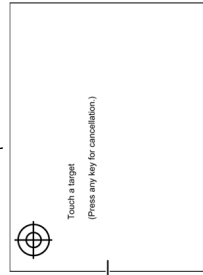


Pressing any button displays the setting window relative to that item to permit changes in set values. Changes to each item are reflected to the driver software in operation when closing the window. Pressing the [Close] button after completion of all settings records all set values in "tpdrv.ini".



### Calibration Mode

Target is displayed in the order of upper left, bottom left and upper right. And calibration is completed.

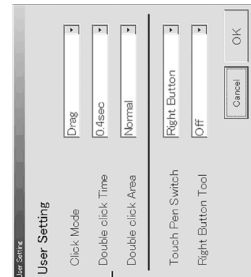


Adds a Setup Program short cut onto the task bar.

### Cursor Position Fine Adjustment

As the result of carrying out calibration, the mouse cursor appears at the touched position normally. If the cursor position is off slightly for some reason, use these buttons.

### User Setting



Setup program

Setup program

Setup of basic settings

This sets the COM port of connecting PC.  
The port being used for connection with the touch panel is selected.

Basic Setting

Port

Auto connect

Calibration Mode

Normal

Palm Touch

Off

PenID Setting

ID Prohibition

PenID Display

ID no. 1

Cancel

OK

Palm Touch

Basic Setting

Port

Auto connect

Calibration Mode

Normal

Palm Touch

Off

PenID Setting

ID Prohibition

PenID Display

ID no. 1

Cancel

OK

(1) Off

Please select this mode in case of touching display by finger or touch pen.

(2) On

Please select this mode in case of touching display by plam.

Communication Port

When "Auto connect" is chosen, driver software detects it automatically, and it is set up.  
If it isn't possible to connect automatically, choose a connecting port.  
Connecting port number will vary depending upon the environment of PC.

Basic Setting

Port

Auto connect

Calibration Mode

Normal

Palm Touch

Off

PenID Setting

ID Prohibition

PenID Display

ID no. 1

Cancel

OK

Setup of Touch Pen ID

Basic Setting

Port

Auto connect

Calibration Mode

Normal

Palm Touch

Off

PenID Setting

ID Prohibition

PenID Display

ID no. 1

Cancel

OK

ID of the optional touch pen is selected on the touch panel side.

(1) ID Prohibition

Regardless of the ID number, the signal is accepted.

(2) ID No.1 - 4

Only the signal of the optional touch pen with the same ID is accepted.

Calibration Mode

(1) Normal  
Please select this mode when you calibrate normally.  
(2) Special  
Please select this mode if you can not calibrate normally. (ex:display is zoomed.)

Basic Setting

Port

Auto connect

Calibration Mode

Normal

Palm Touch

Off

PenID Setting

ID Prohibition

PenID Display

ID no. 1

Cancel

OK

Touch Pen ID indication

Basic Setting

Port

Auto connect

Calibration Mode

Normal

Palm Touch

Off

PenID Setting

ID Prohibition

PenID Display

ID no. 1

Cancel

OK

ID of the optional touch pen presently being used is indicated.



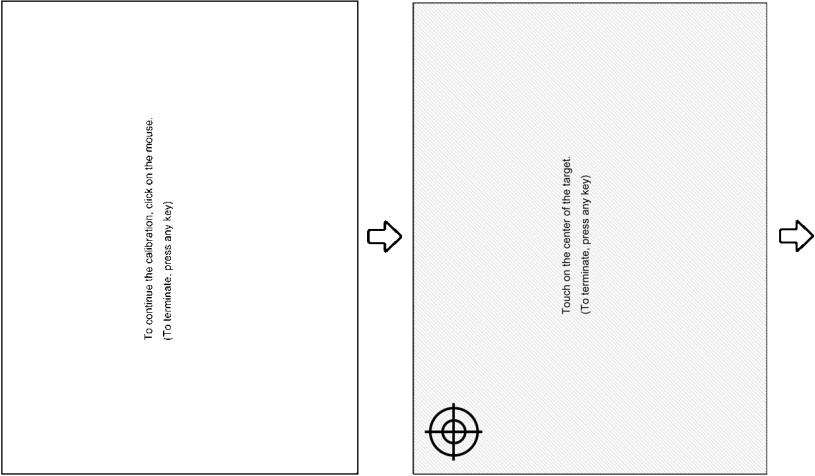
Setup program

Calibration Mode

Pressing the [Calibration] button on the main window activates the calibration screen to carry out calibration of the detection of the Touch Panel and PC (in order to place the mouse cursor at the touched position).  
Briefly touch the center of the target displayed on the screen in order as they appear.  
Target is displayed in the order of upper left, bottom left, and upper right.  
To stop calibration, press any key on the keyboard.  
Once calibration is carried out, the calibrated value is saved in the setting file. Since the calibrated value is read from the setting file at the time of the next startup, there is no need to carry out calibration again.

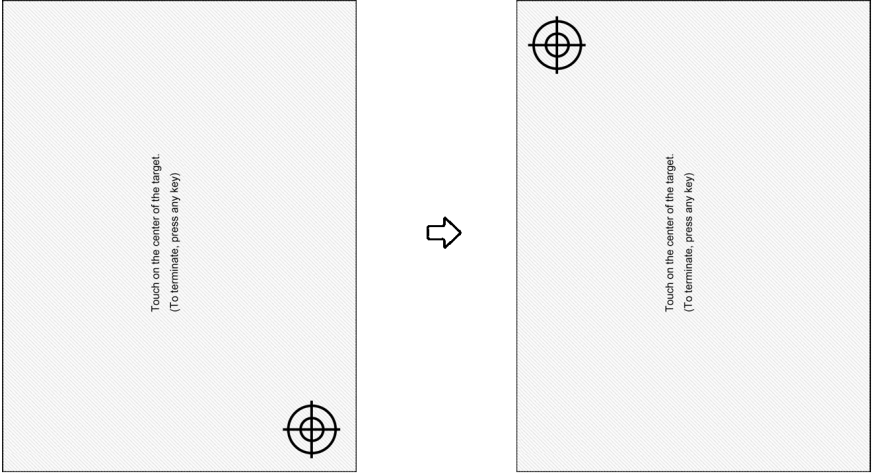
In case of normal setting

\* Calibration Screen is indicated in order as follows.



Setup program

Calibration Mode

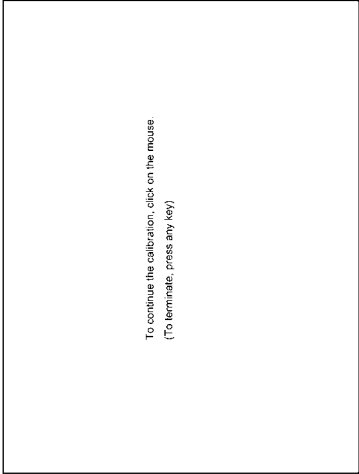


Setup program

Calibration Mode

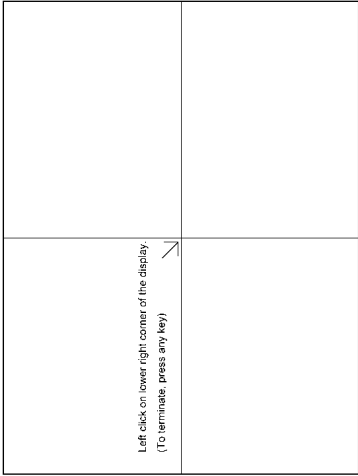
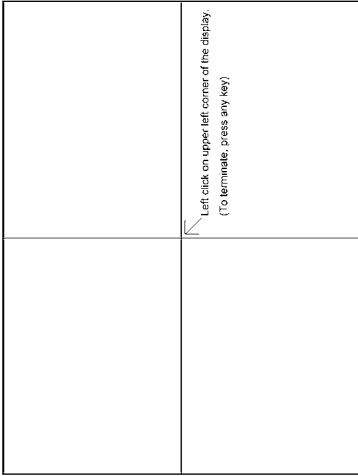
In case of special setting

\* Calibration Screen is indicated in order as follows.



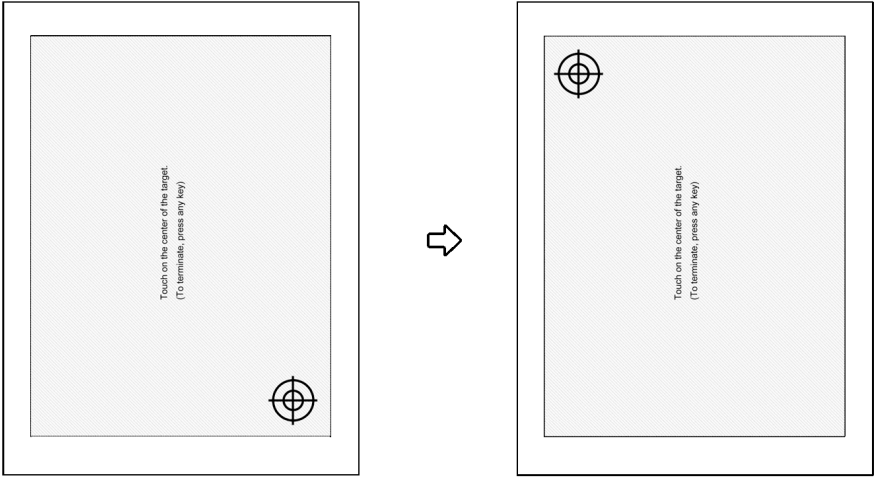
Setup program

Calibration Mode



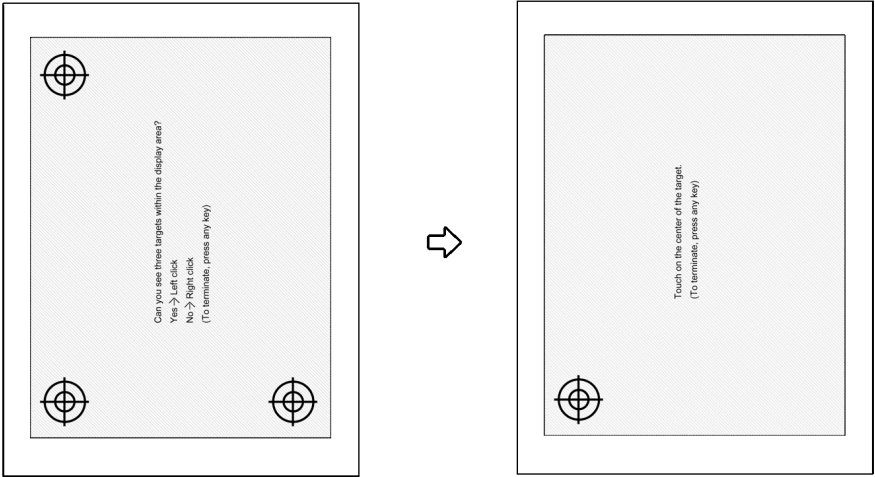
Setup program

Calibration Mode



Setup program

Calibration Mode



Setup program

Setup program

User Setting

The following window is displayed by pushing the user setting button of the Touch Panel setting program menu.

User Setting

Click Mode

Drag

Double click Time

0.4sec

Double click Area

Normal

Touch Pen Switch

Off

Right Button Tool

Off

OK

Cancel

Click Mode

Double click Time

Time interval when double-clicking is set up.  
Time between the first touch and the second touch is set. When the second touch is performed within the set time, it is recognized as double click.  
Available time settings are 0.2 to 1.0 seconds within the interval of 0.2 seconds.

In Windows use "slow" mouse setting when you want to change this setup.

Double click Area

Sets the effective ranges of double click area. Even if there is some distance between the first and the second touches, it can be recognized as double click.  
When it is set up "Wide", it becomes wide, and when it is set up "Narrow", it becomes narrow. (When compared to "Normal" setting.)

Touch Pen Switch

Sets the function switch of the optional touch pen. (TY-TPEN6)

- Right Button  
By touching a display while pushing the function switch, it works the same as a right mouse button.
- Off  
The function switch of the touch pen is inoperative.

Right Button Tool

When the operation of the right mouse button is performed with the touch panel, this tool is displayed. Touching the tool establishes that only the next touch corresponds to the pressing operation of the right mouse button. After that the normal left mouse button operation is returned.



Left button operation



Right button operation

Off : No tool is displayed.

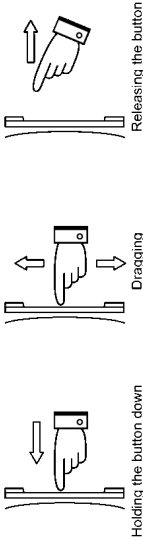
Click Mode

Drag

Touching the touch panel with your finger corresponds to the holding down operation of the left mouse button. Release of your finger from the touch panel corresponds to the release operation from the left mouse button.

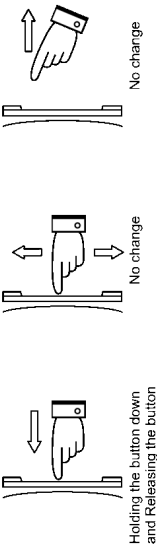
Therefore at the time of releasing the finger from the touch panel, click event occurs.

In addition, when moving the finger, the mouse cursor follows the movement so that the drag operation is made possible.



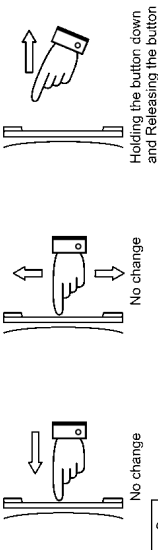
Click on touch

Touching the touch panel corresponds to the single click operation of the left mouse button (ON/OFF of the button). When touching the touch panel, click event occurs. The cursor does not follow the movement of the finger (i.e. drag function not available).



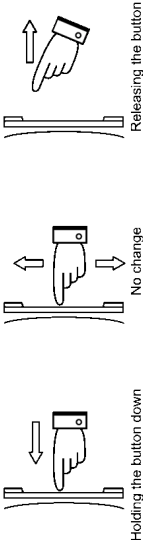
Click on Release1

Releasing the finger from the touch panel, click event occurs. While the finger touches the touch panel, no click event occurs. In addition, the cursor does not follow the movement of the finger (i.e. no drag function is available).



Click on Release2

Releasing the finger from the touch panel, click event occurs. For the dragging function, the cursor does not follow the movement of the finger. The dragging action will occur only after you release your finger from the touch screen.



# 5 Touch Pen (Option)

## Touch Pen

This product is intended for use only with a touch panel.

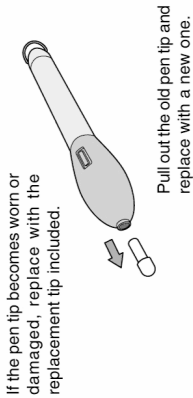
## Warnings

- **Never attempt to disassemble or modify this product.**  
To avoid fire, shock, or failure.
- **Be careful not to grasp the infrared-ray-emitting area of the touch pen while using it. This may result in incorrect operation.**
- **Do not press the pen tip down with excessive force.**
- **The pen may not work correctly if there is an intense light source or equipment employing infrared rays nearby. Keep as far away from such light sources as possible.**
- **Do not operate the touch pen simultaneously with the remote control for a TV or VCR. Incorrect operation may result if operated simultaneously.**
- **If the touch pen surface becomes soiled, gently wipe off the soiling with a soft cloth.**  
If the surface becomes extremely soiled, soak a cloth in neutral detergent diluted with water, wring out the cloth well, wipe off the surface with the cloth, and then finish by wiping with a dry cloth. Be careful not to let water drops get inside the equipment, as this may cause it to malfunction.
- **If the touch pen will not be used for a long time, remove the batteries to conserve their energy.**

## Accessories

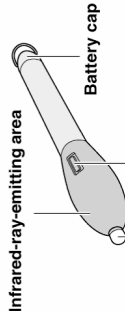


## Touch pen tip replacement method



## Naming / Use

Turn on the selection switch at the rear of the touch panel.



**Function switch**  
Press this to use the functions that can be set in "Touch Panel Setting Program" menu.  
(Please refer to the operating instructions of touch panel)

**Pen tip**  
Pressing the pen tip performs the same operation as clicking the left button of the PC mouse.

## Battery installation

### How to install Batteries

- 1 Remove the battery cap.
  - 2 Insert batteries.
  - 3 Refit the battery cap.
- Rotate the cap counter-clockwise with the correct orientation to remove.
- Rotate the cap clockwise to refit.

### Precautions on battery use

Incorrect installation can cause battery leakage and corrosion that will damage the touch pen.

#### Observe the following precautions:

1. Batteries should always be replaced as a pair. Always use new batteries when replacing the old pair.
2. Do not combine a used battery with a new one.
3. Do not mix battery types (example: "Zinc Carbon" with "Alkaline").
4. Do not attempt to charge, short-circuit, disassemble, heat or burn used batteries.

## Touch Pen ID setting and use

In order to use multiple touch pens and touch panels in close distance, it is necessary to set ID numbers for each touch pen and touch panel setting, so that all pens can be operated without interfering with each other.

### Prior to touch pen ID setting

Carefully read the Manual for the touch panel, and then continue with the following procedure.

- 1 Turn on the power to the plasma display and PC, in that order.
- 2 Switch the plasma display input to PC.
- 3 After the PC has finished starting up, open "Touch panel setting program" from the "Task Bar" on the PC screen, and click on the "Basic Setting" button.

### Touch Pen ID setting

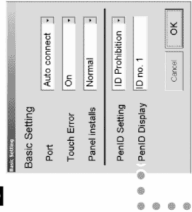
Perform the following operation on the touch panel within 5 meters. (16.4 feet)

- 1 Turn the battery cap of the touch pen counter-clockwise and remove it. (Be sure that batteries keep staying in the touch pen.)
- 2 Hold the touch pen so the pen tip is facing downwards, press and hold the pen tip, and perform the following operation.
  - 1 Refit the battery cap and wait for at least 2 seconds.
  - 2 Slowly press the function switch 3 times.
- 3 Release the pen tip.

- 4 Slowly press the function switch 3 times.

- 5 Press the pen tip.  
The touch pen will enter the ID setting mode.

- 6 Press the function switch, and set the ID number.



- By pressing the function switch on the touch pen, ID number can be changed with the following sequence.

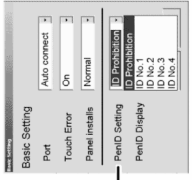


- 7 Press the pen tip. ID number will be set.

Be sure to follow the above procedure when changing ID numbers.

### Touch Panel setting for Pen ID

Press "Pen ID Setting" on the "Basic Setting" screen.



ID prohibition : Recognizes the signals from any touch pens regardless the Pen ID.  
ID no. 1 - 4 : Recognizes the signals only from the touch pens with the same ID.

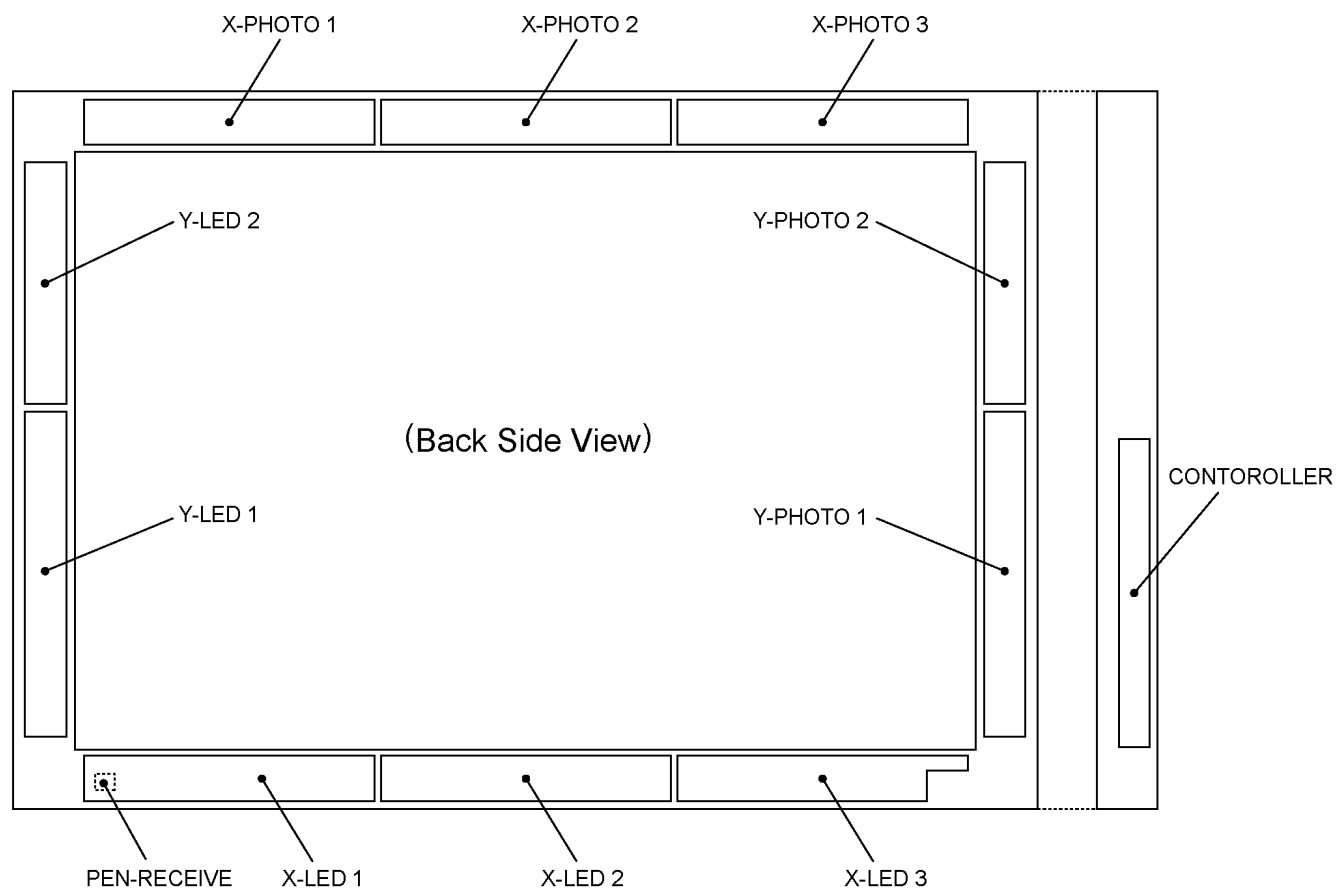
## Specifications

Battery	LR03, AAA, R03 ... 2 pcs
Battery life	Approx. 500 hours (With 1 operation per second, using 750 mAh alkaline dry cells)
System	PIC microcomputer control, Infrared data transmission system
Transmitted information	ON/OFF status of pen tip switch ID (Identification no.)
Data transmission time	Approx. 10 ms (1 block of data)
IDs (Identification nos.)	4 nos.
ID setting method	Pen : Set in ID setting mode Touch panel : Set with touch panel setting program
Infrared wavelength	940 nm
Burst frequency	38 kHz
Number of infrared LEDs	3
Transmission distance	Approx. 5 m

## 6 Printed Circuit Board Structure

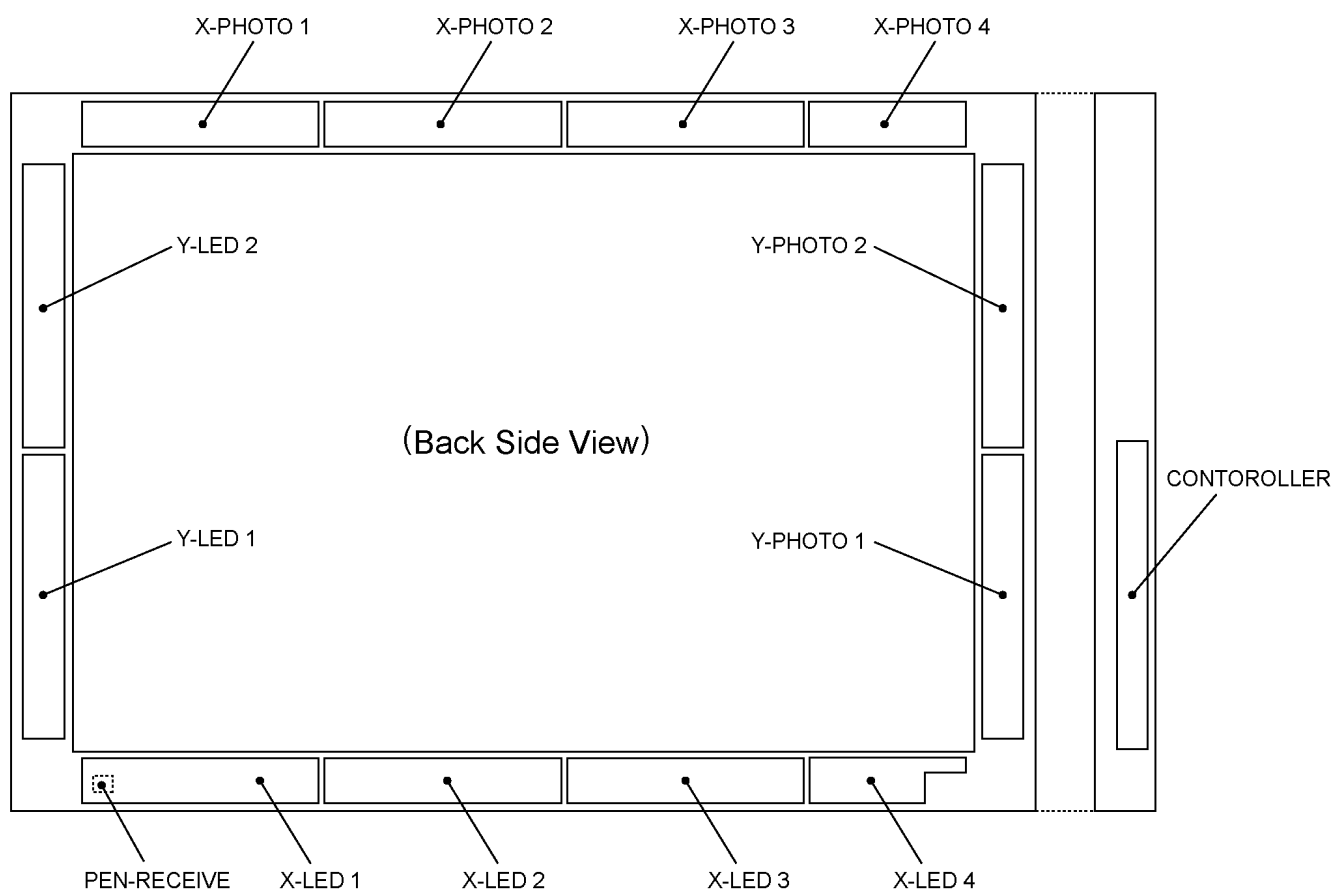
### 6.1. TY-TP42P8-S

Board Name	Board Number	Function
CONTROLLER	G441-K1TD11	
PEN-RECEIVE	G441-K1TD12	Touch Pen Remote Receiver
Y-LED 1	G441-K1TD07	IR Emitter to Y-PHOTO 1
Y-LED 2	G441-K1TD06	IR Emitter to Y-PHOTO 2
X-LED 1	G441-K1TD08	IR Emitter to X-PHOTO 1
X-LED 2	G441-K1TD09	IR Emitter to X-PHOTO 2
X-LED 3	G441-K1TD10	IR Emitter to X-PHOTO 3
Y-PHOTO 1	G441-K1TD01	IR Receiver from Y-LED 1
Y-PHOTO 2	G441-K1TD02	IR Receiver from Y-LED 2
X-PHOTO 1	G441-K1TD05	IR Receiver from X-LED 1
X-PHOTO 2	G441-K1TD04	IR Receiver from X-LED 2
X-PHOTO 3	G441-K1TD03	IR Receiver from X-LED 3



## 6.2. TY-TP50P8-S

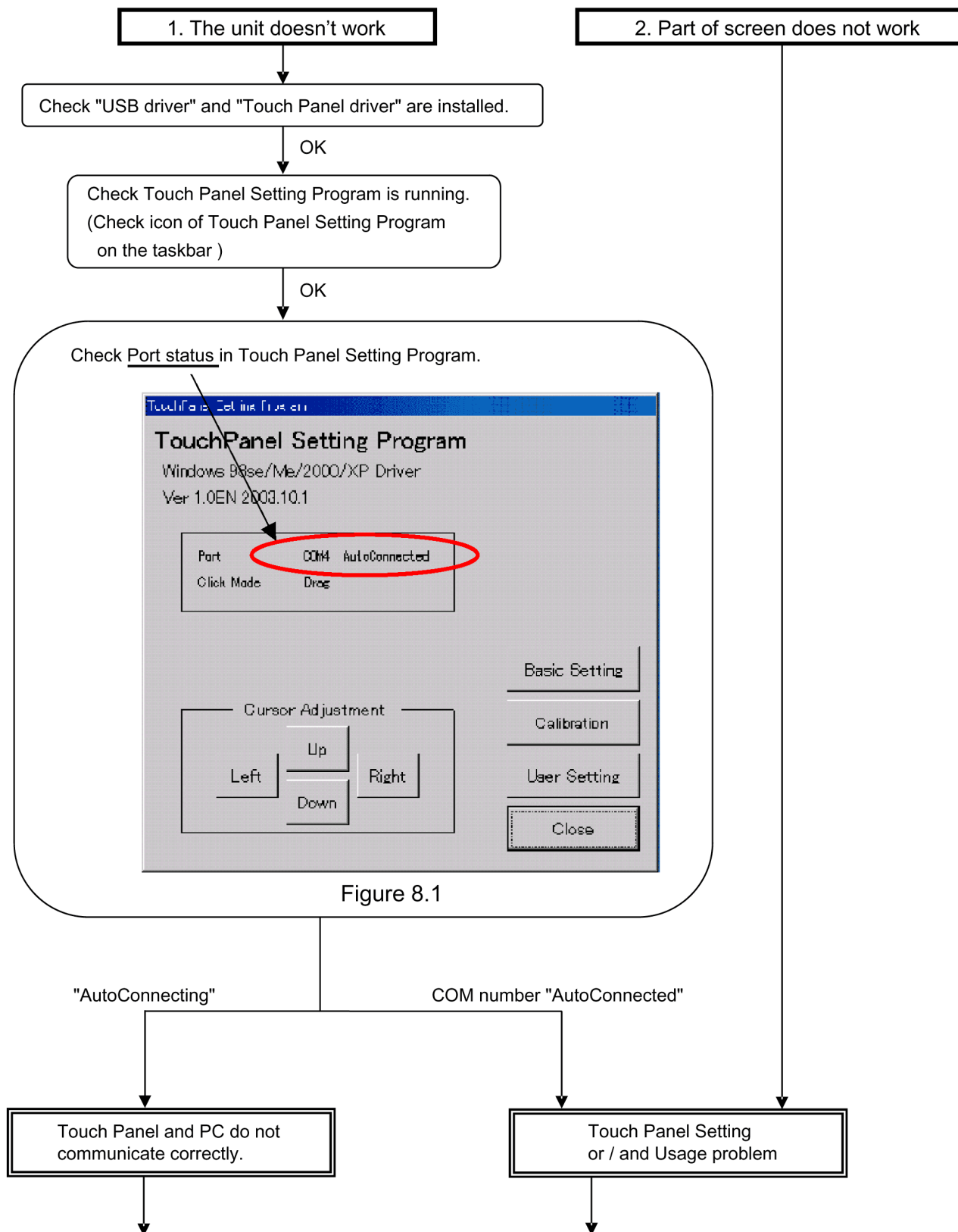
Board Name	Board Number	Function
CONTROLLER	G541-K1TD13	
PEN-RECEIVE	G541-K1TD14	Touch Pen Remote Receiver
Y-LED 1	G541-K1TD08	IR Emitter to Y-PHOTO 1
Y-LED 2	G541-K1TD07	IR Emitter to Y-PHOTO 2
X-LED 1	G541-K1TD09	IR Emitter to X-PHOTO 1
X-LED 2	G541-K1TD10	IR Emitter to X-PHOTO 2
X-LED 3	G541-K1TD11	IR Emitter to X-PHOTO 3
X-LED 4	G541-K1TD12	IR Emitter to X-PHOTO 4
Y-PHOTO 1	G541-K1TD01	IR Receiver from Y-LED 1
Y-PHOTO 2	G541-K1TD02	IR Receiver from Y-LED 2
X-PHOTO 1	G541-K1TD06	IR Receiver from X-LED 1
X-PHOTO 2	G541-K1TD05	IR Receiver from X-LED 2
X-PHOTO 3	G541-K1TD04	IR Receiver from X-LED 3
X-PHOTO 4	G541-K1TD03	IR Receiver from X-LED 4



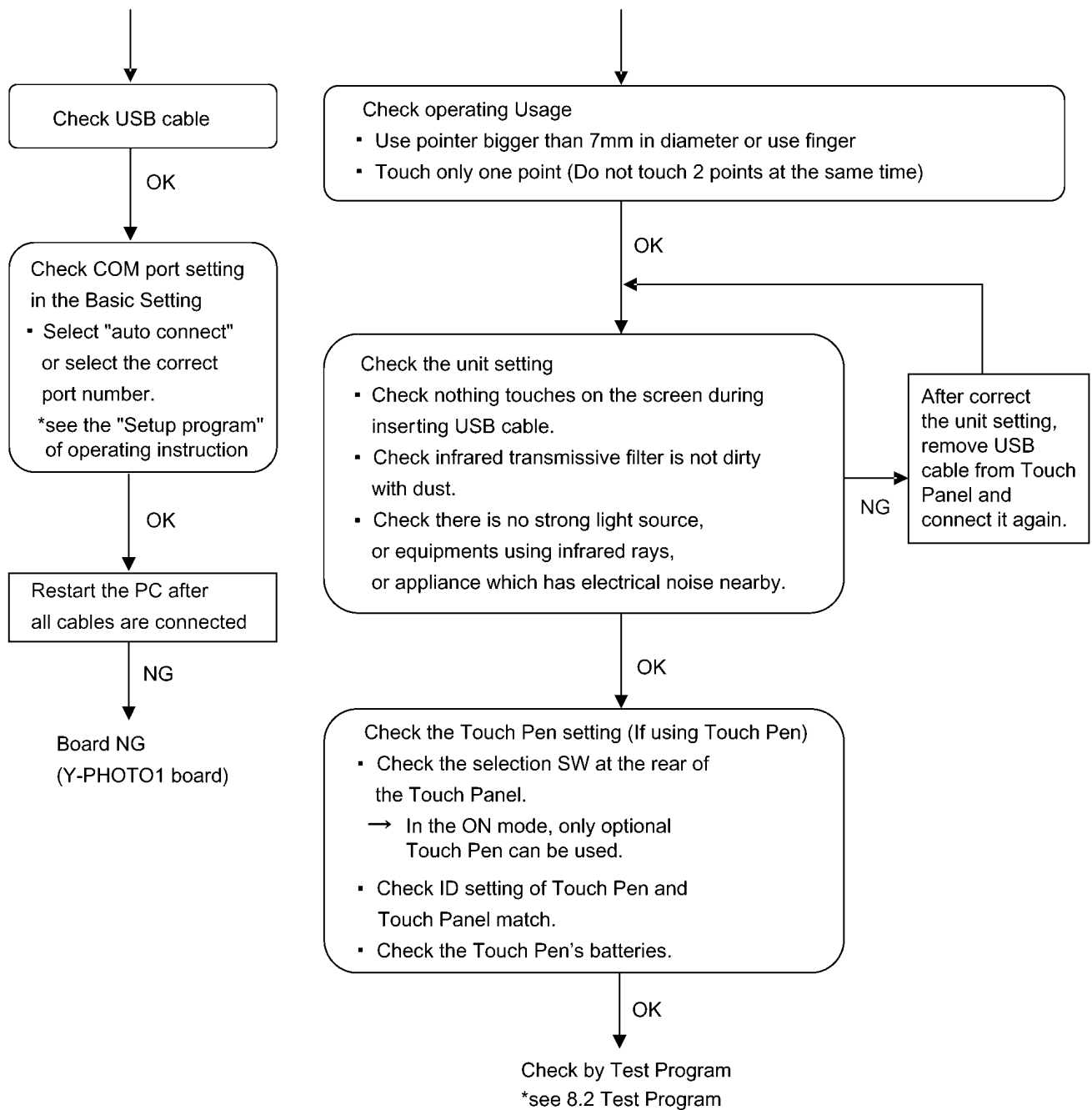
## 7 Trouble shooting

If the Touch Panel does not work correctly, refer to this Checking procedures.

### 7.1. Checking procedures







## 7.2. Test Program

### 7.2.1. Function

Touch Panel Test Program is software to check operating status.

Touch Panel detects the location by cutting off the infrared ray from IR LEDs to phototransistors.

This program checks each line of infrared ray and finds out the location of defective IR LED and phototransistor.

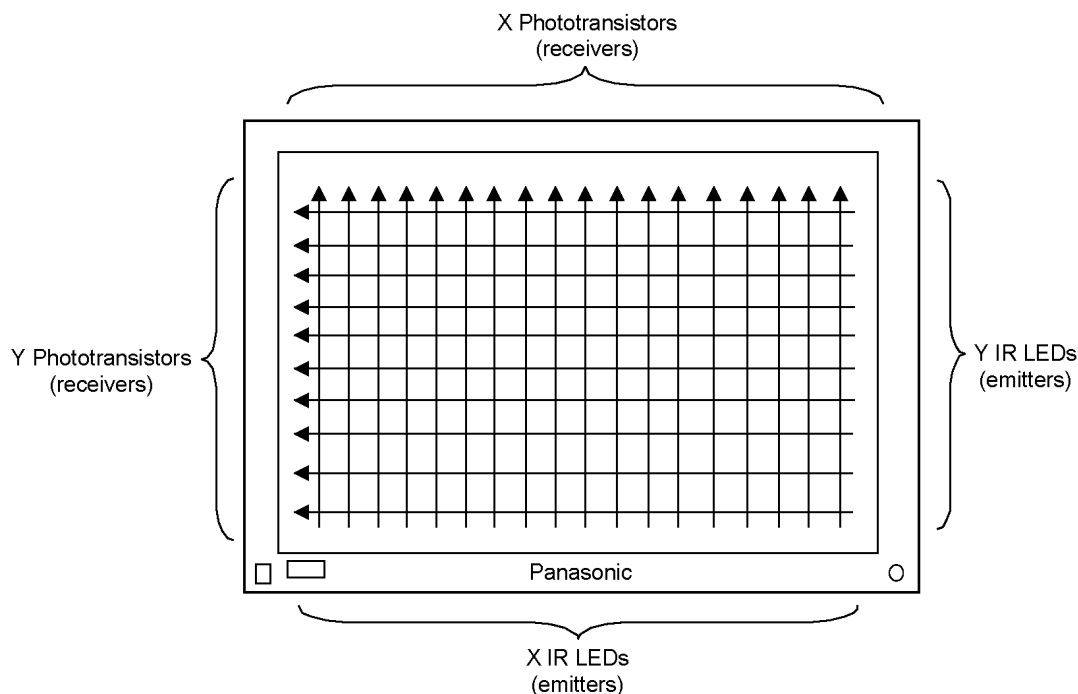


Figure 8.2 (Front View)

### 7.2.2. Installation

There are 2 test programs. Program name "testTP42P8" is for TY-TP42P8-S, "testTP50P8" is for TY-TP50P8-S.

The installation program consists of following 4 files under one folder. The folder name is the same as test program, "testTP42P8" or "testTP50P8".

Setup.exe  
 SETUP.LST  
 testTP1.CAB  
 testTP2.CAB

Run the "Setup.exe" and follow the instructions. The test program "testTP50P8" or "testTP42P8" will be installed to your PC.

#### NOTES:

To Uninstall, delete "testTP50P8" or "testTP42P8" from the "Add/Remove Programs" of Control Panel.

### 7.2.3. Set up

1. Check COM port number of Touch Panel from the menu of Touch Panel Setting Program(see Figure8.1. of Trouble Shooting) or Device Manager of Windows(See the “Installation of the USB driver” of operating instruction).

The COM port number is necessary to set for this test program(see 8.2.4-2. COM port setting).

2. Change resolution of the PC monitor to higher than XGA(1024 x 768).

3. End the Touch Panel driver program by following procedure.

Press CTRL+ALT+DELETE to start Task Manager. Click the Applications tab, click the programs of “tpmenu” and “tpdrv”, and then click End Task(This test program cannot be used while Touch Panel driver is running).

Below is the example of Windows XP.

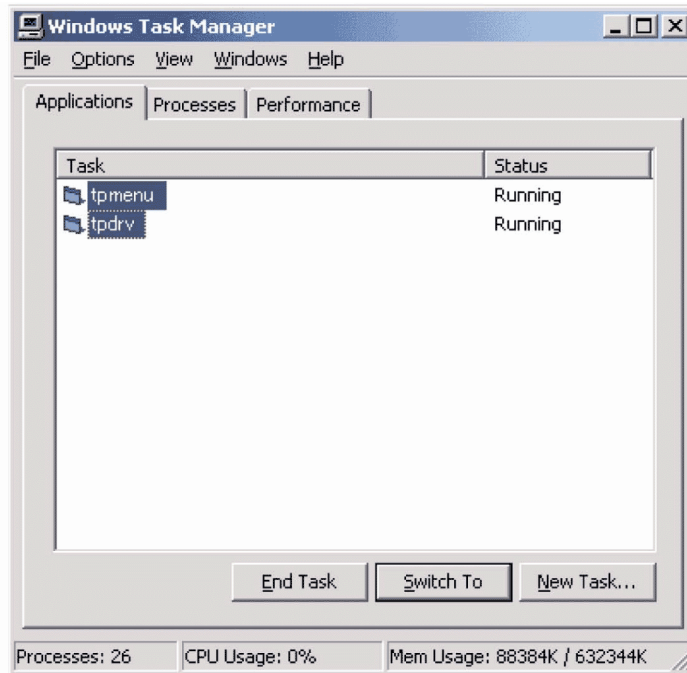


Figure 8.3

## 7.2.4. Operational Procedures

### 1. Start the Test Program

Click icon of “testTP42P8” or “testTP50P8” on start menu, then following window appears.

Below is an example window for “testTP42P8” or “testTP50P8”.

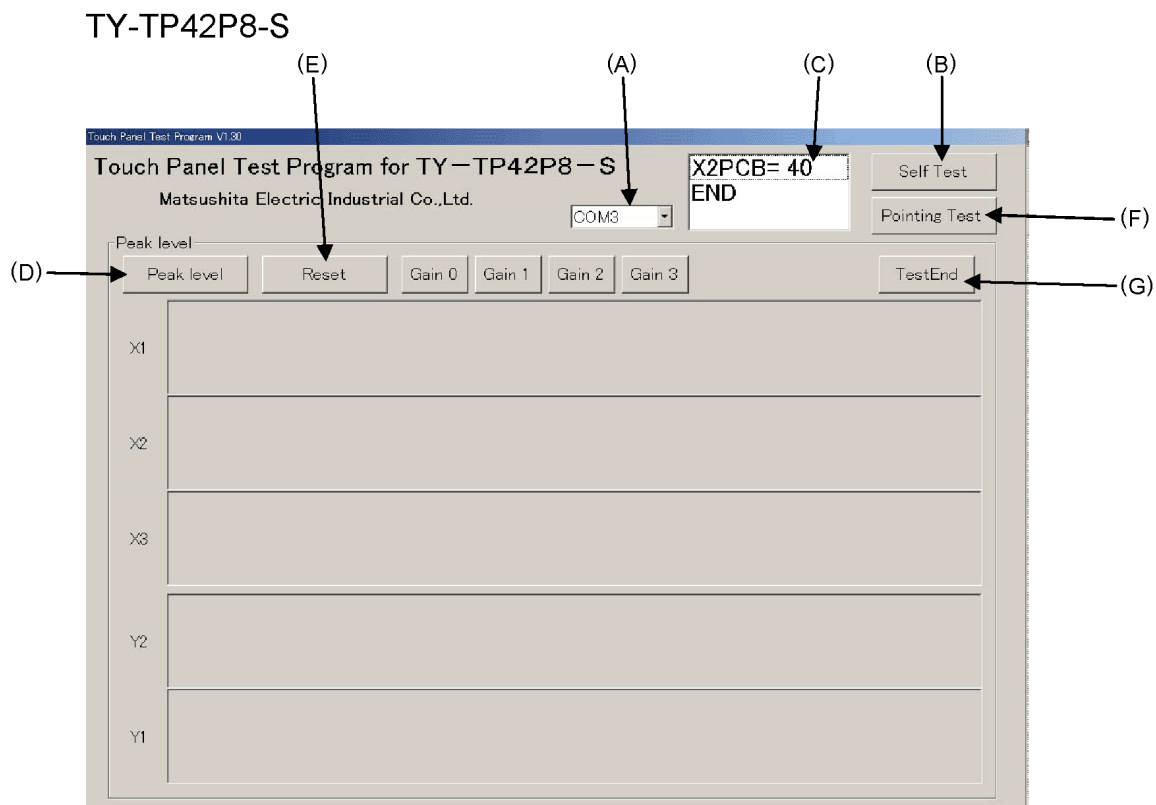


Figure 8.4

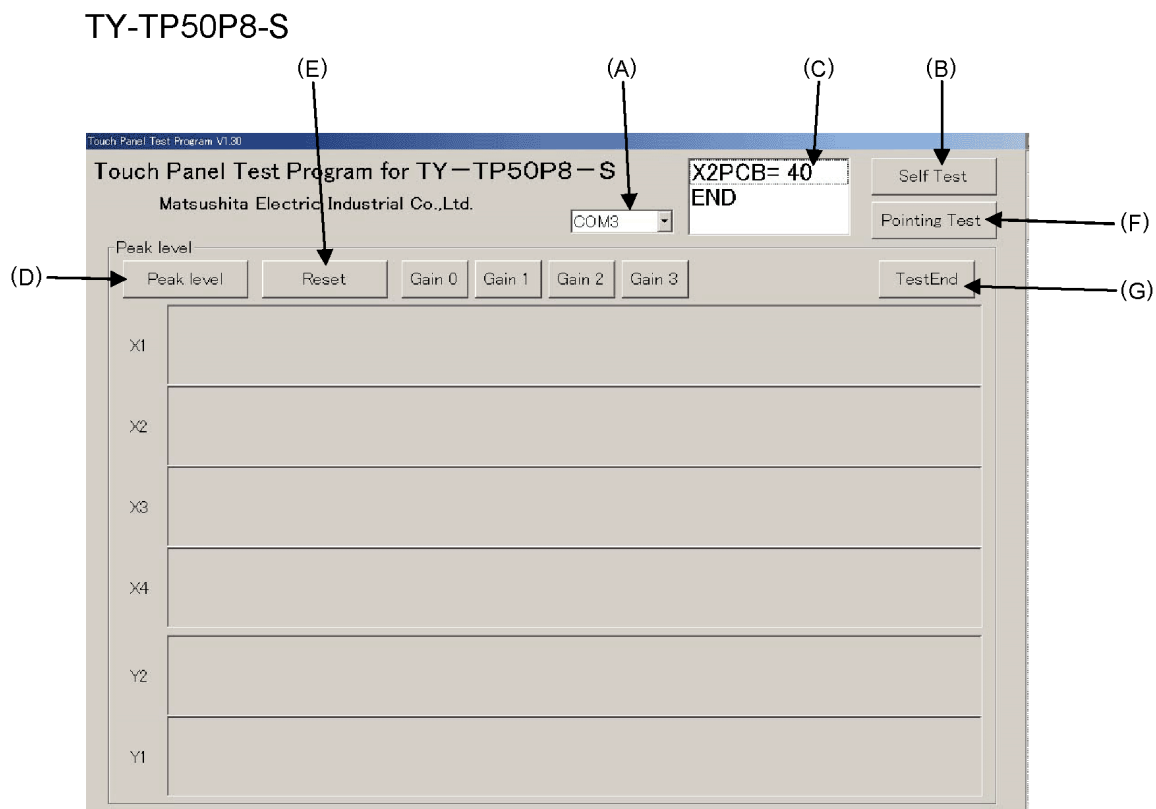


Figure 8.5



**About the NG indication of the textbox C :**

There are 6 areas of X1, X2, X3, Y1, and Y2. See Below “area location” for defective line. (TY-TP42P8-S)

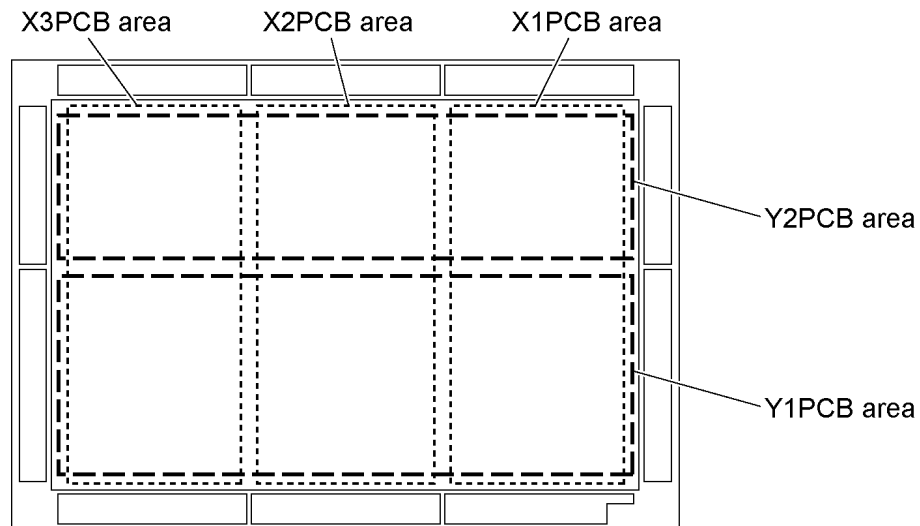


Figure 8.6 : area location (Front View)

There are 8 areas of X1, X2, X3, X4, Y1, and Y2. See Below “area location” for defective line. (TY-TP50P8-S)

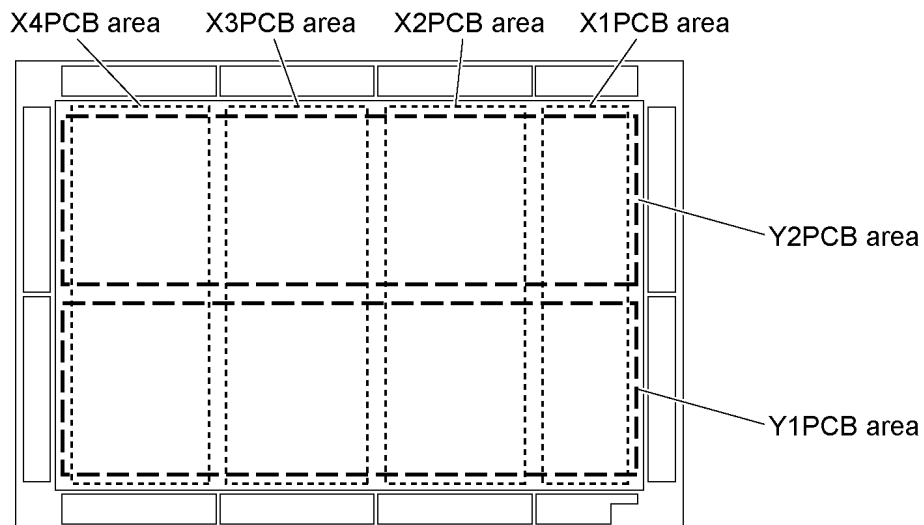


Figure 8.7 : area location (Front View)

See Below "Location Number of defective line" for TY-TP42P8-S.

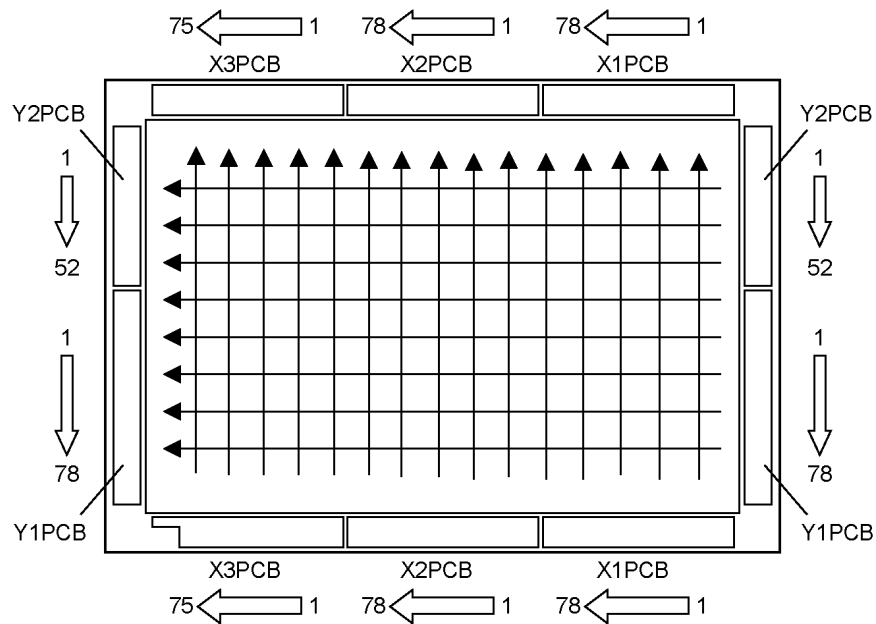


Figure 8.8 : Location number of defective line (Front View)

See Below "Location Number of defective line" for TY-TP50P8-S.

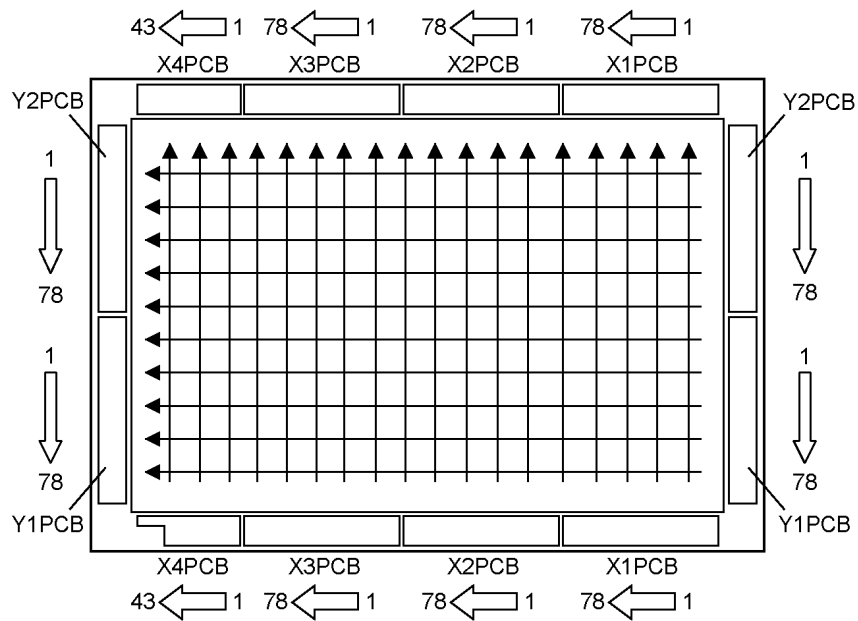


Figure 8.9 : Location number of defective line (Front View)

For example, "X2PCB = 40" means 40th line of X2PCB area is defective.

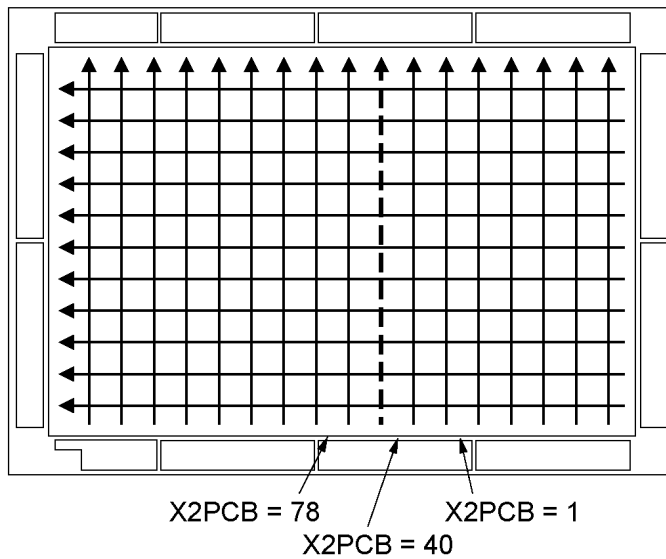


Figure 8.10 : image of "X2PCB = 40" (Front View)

#### NOTES:

- This program is to find out defective line. It cannot find out defective part, IR LED or phototransistor.
- If nothing appears in the textbox after clicking button(B) more than 2 times, check COM port or check if Touch Panel driver programs is running(End the Program and restart Test Program).
- The definition of defective line is the received voltage from Phototransistor is less than 200mV.



#### 4. Peak level check

This is to see received level of all phototransistors.

Click “Peak Level” button(D). The received level is shown in the area of “X1”, “X2” and “X3” (TY-TP42P8), “X1”, “X2”, “X3” and “X4” (TY-TP50P8) for vertical line, “Y1” and “Y2” for horizontal line. If the result of Self Test is NG, the received level of detected defective line shows as lower than Red line.

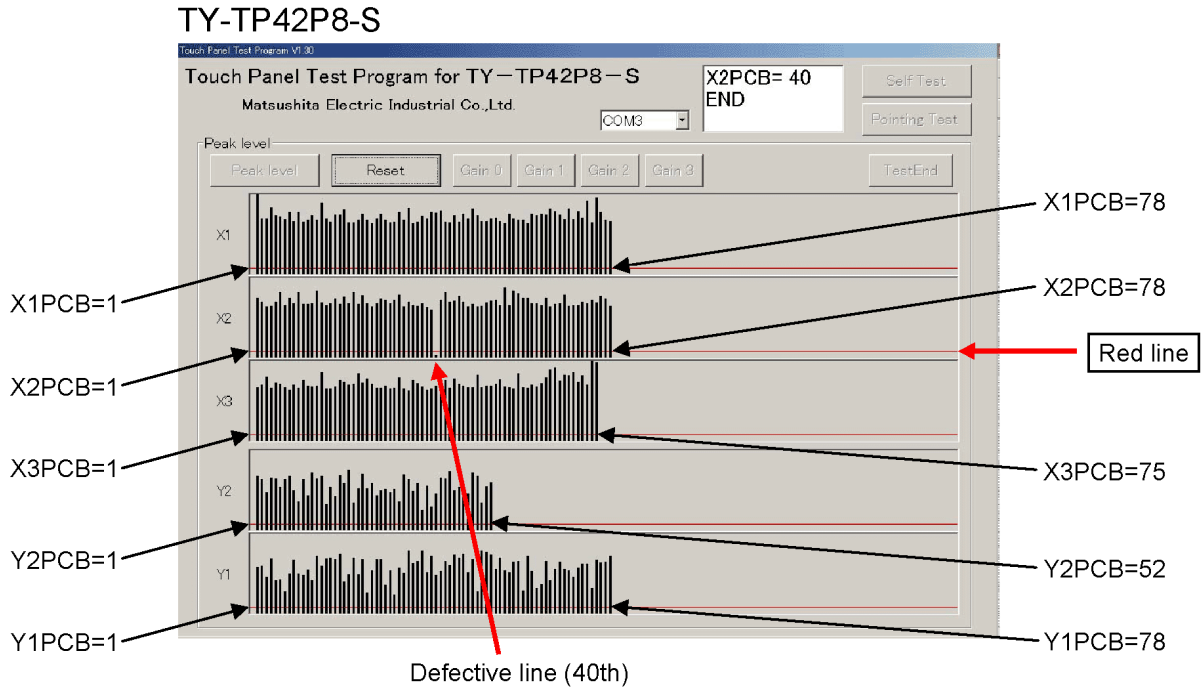


Figure 8.11

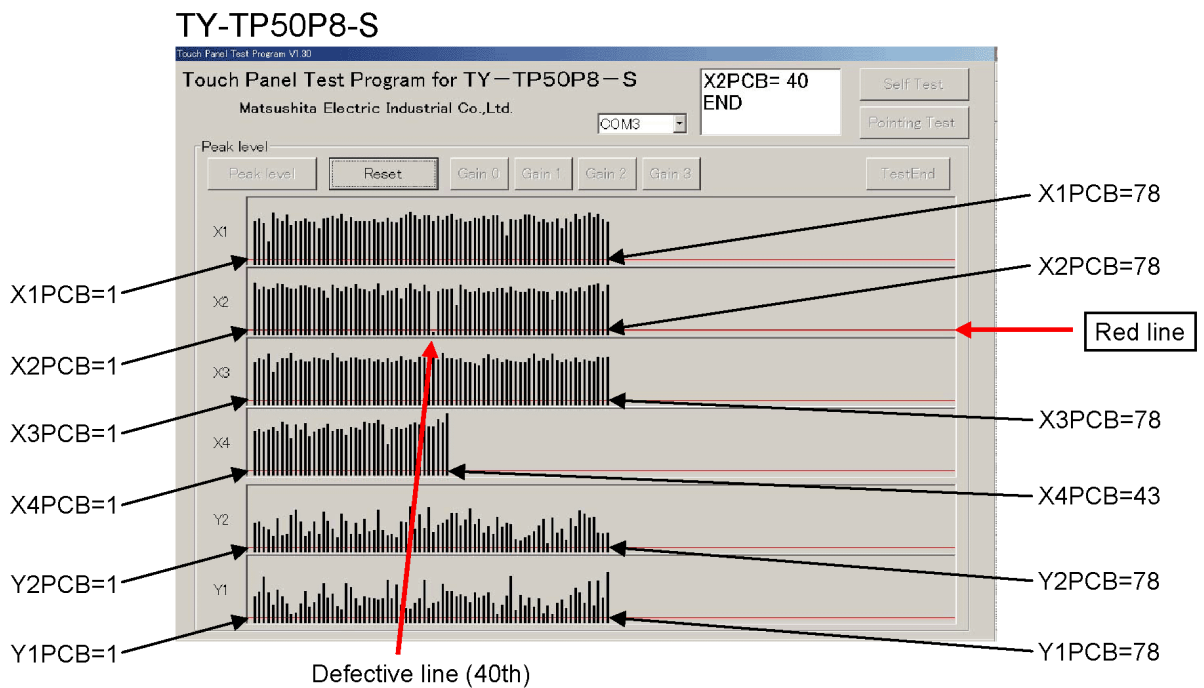


Figure 8.12

Click “Reset” button(E) for ending the Peak level check.

#### NOTES:

The detection gain is automatically controlled while Touch Panel is operating and Self Test program is running.

## 5. Pointing Test

Pointing test is to check the function of Touch Panel after repaired.

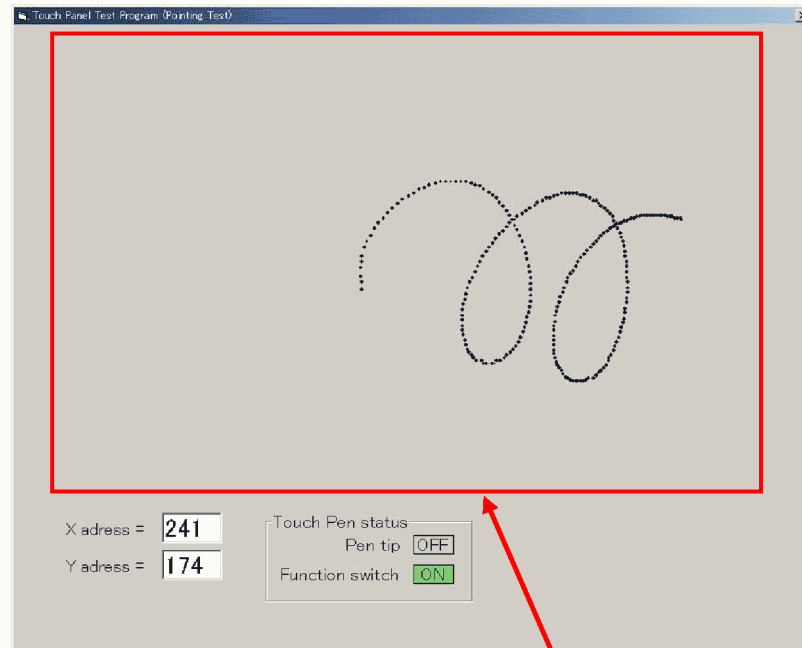
Click "Pointing Test" (F), then new window opens. The frame in window is the image of whole screen of Touch Panel.

Touch the Touch Panel then, the touched place is shown inside the frame.

Check the touch pen functions by touching the frame with the Touch Pen.

Check the Pen tip's operation by "ON" / "OFF" shown in the Touch Pen status below.

Check the Function switch in the middle of the pen operating check by "ON" / "OFF" shown in the Touch Pen status below.



Frame

Figure 8.13

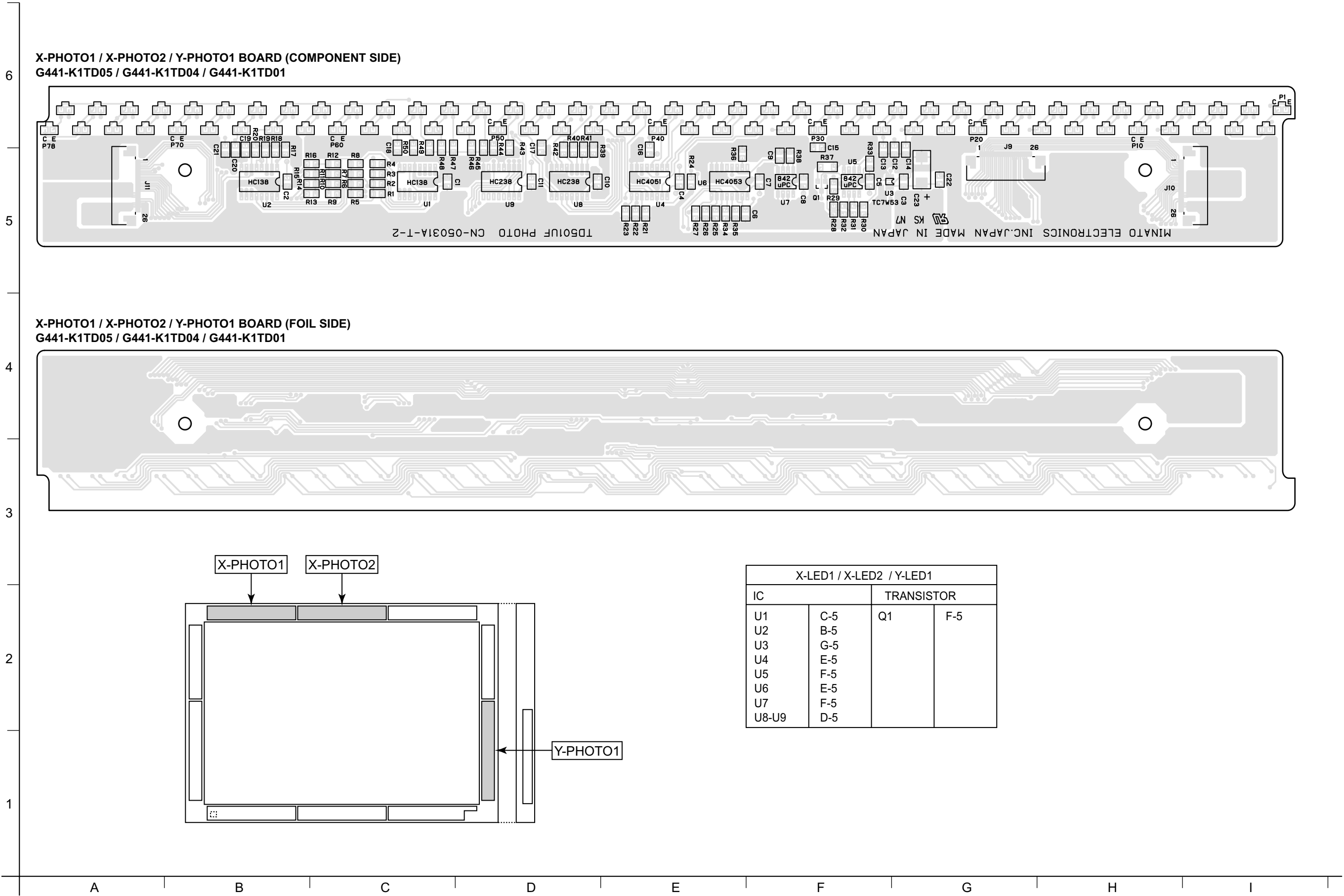
## 6. End

Click "TestEnd" button(G) to end the program.

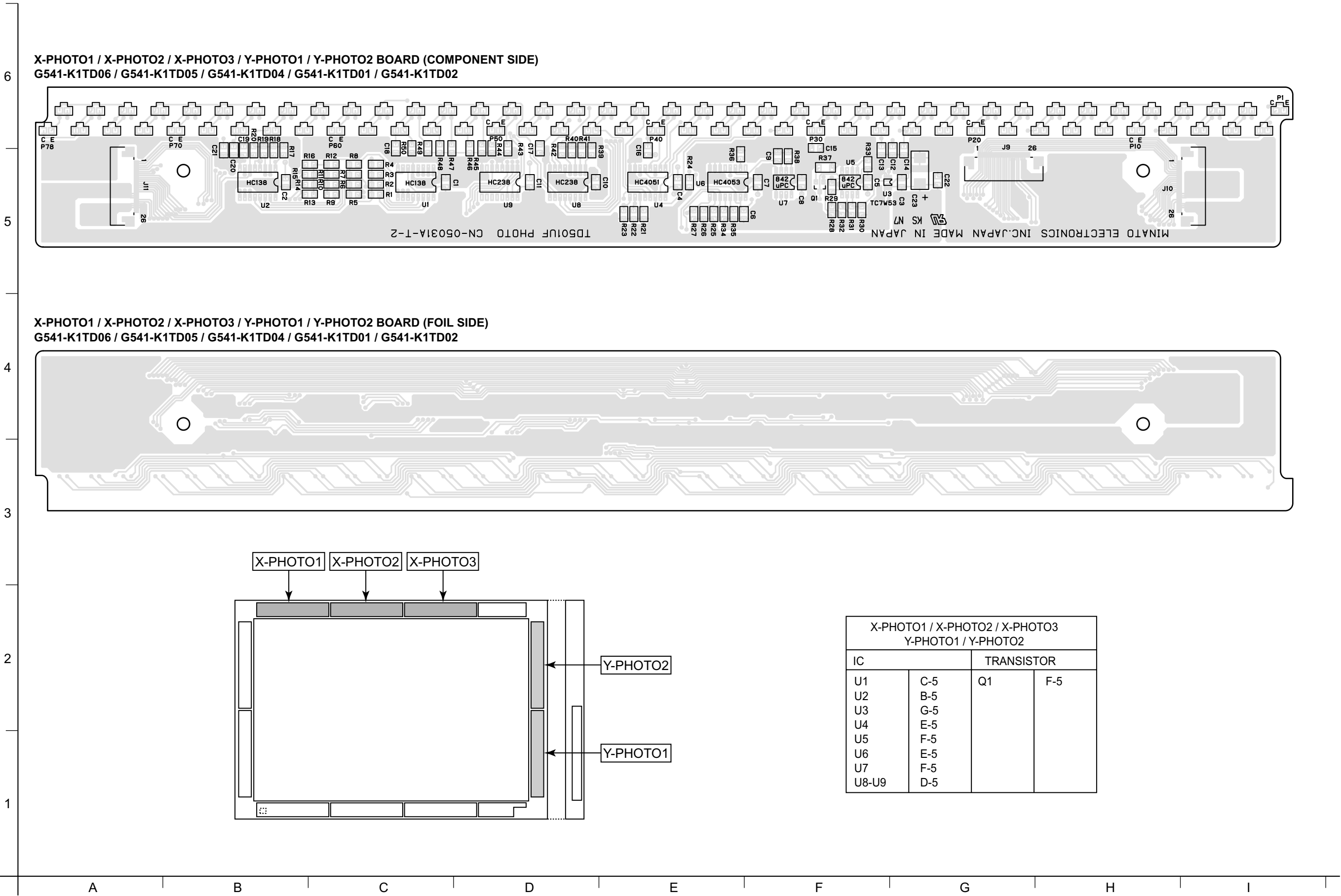
After ending the test program, remove the USB cable and insert it again. Then, run the Touch Panel driver to use Touch Panel.

8 Conductor Views

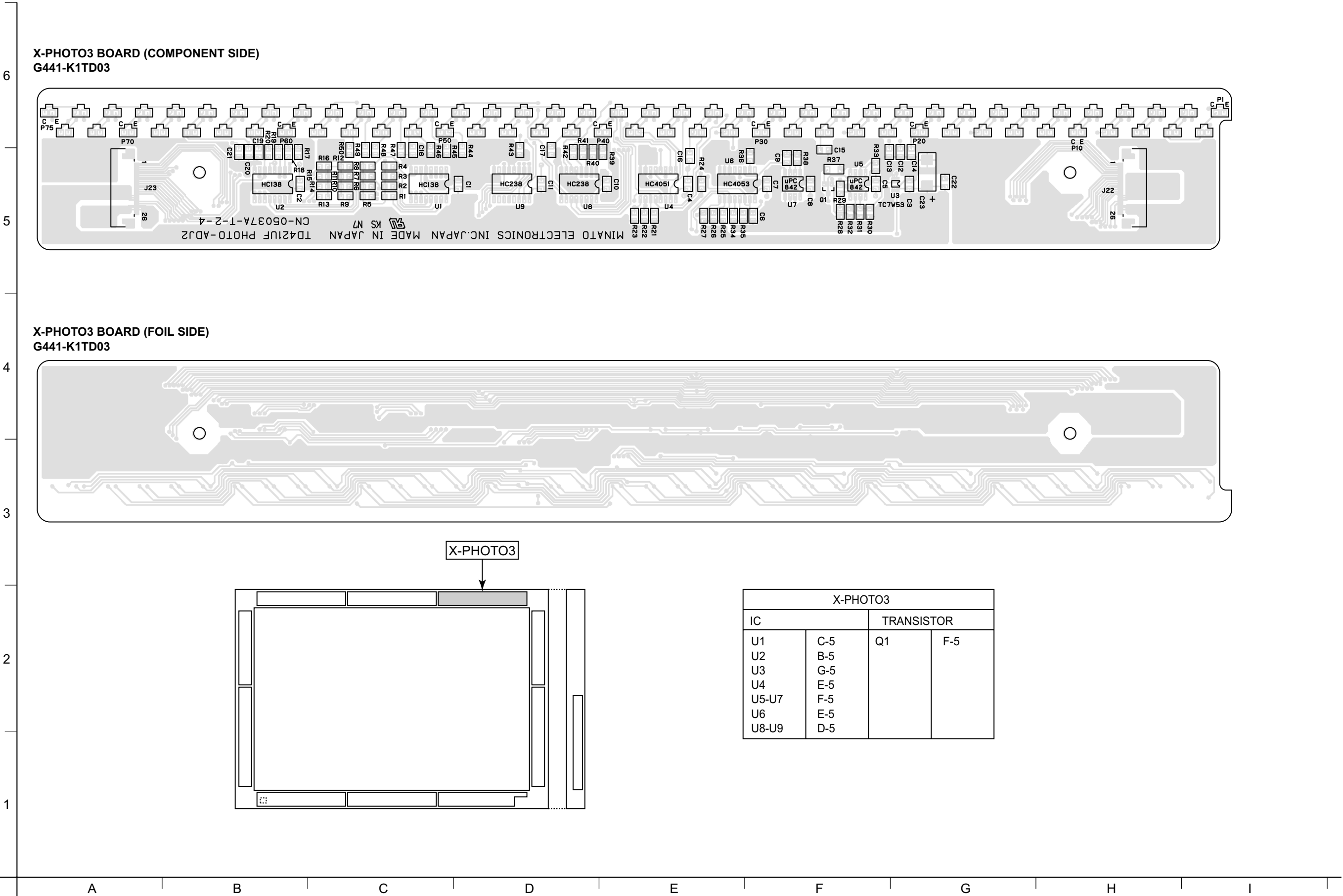
8.1. X-Photo1, X-Photo2, Y-Photo1 Board (42inch)



## 8.2. X-Photo1, X-Photo2, X-Photo3, Y-Photo1, Y-Photo2 Board (50inch)



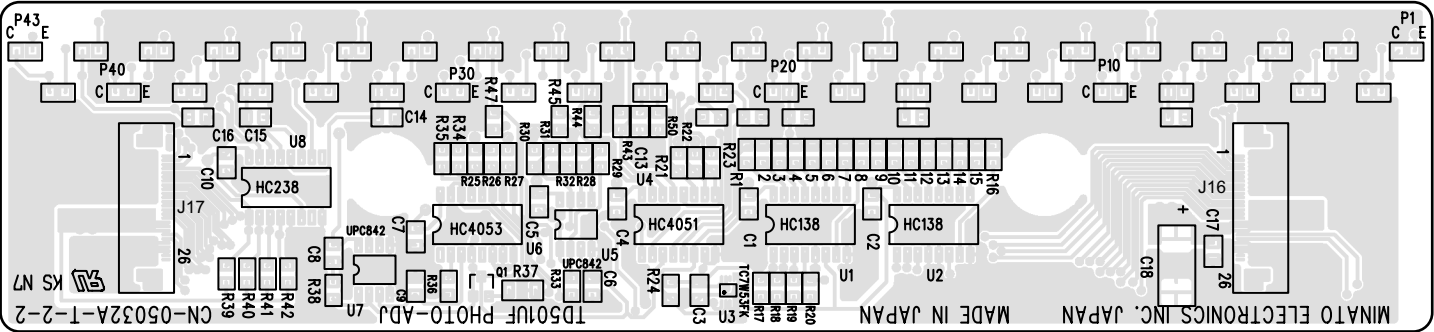
8.3. X-Photo3 Board (42inch)



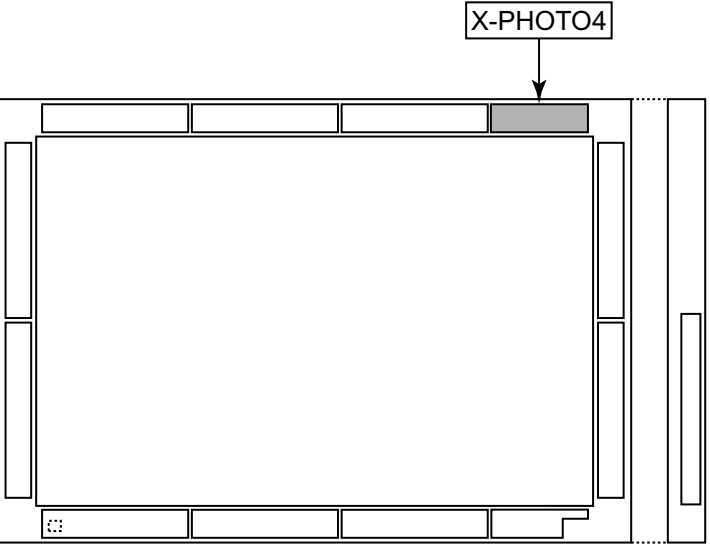
8.4. X-Photo4 Board (50inch)

6  
5  
4  
3  
2  
1

X-PHOTO4 BOARD (COMPONENT SIDE)  
G541-K1TD03



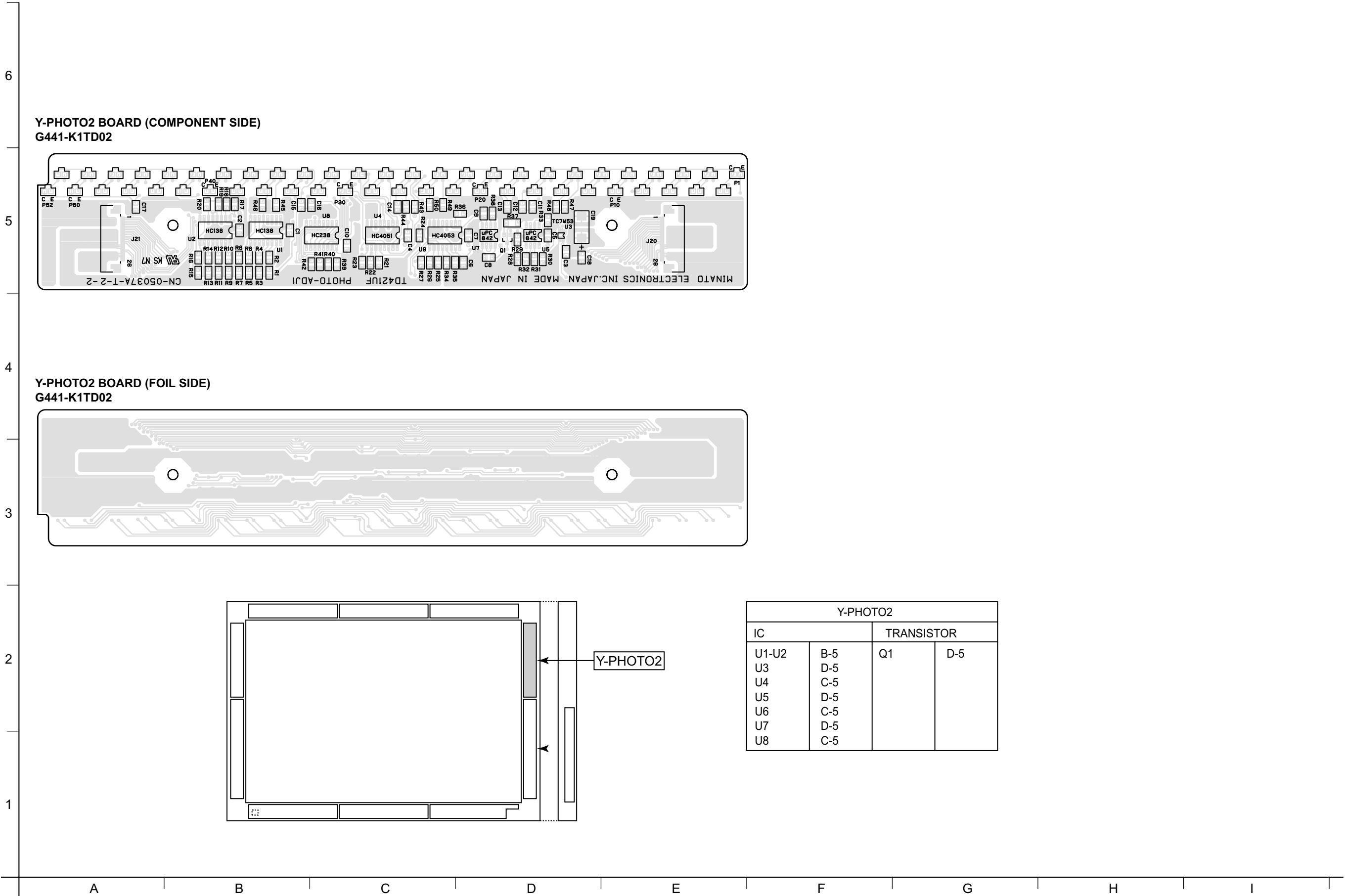
X-PHOTO4 BOARD (FOIL SIDE )  
G541-K1TD03



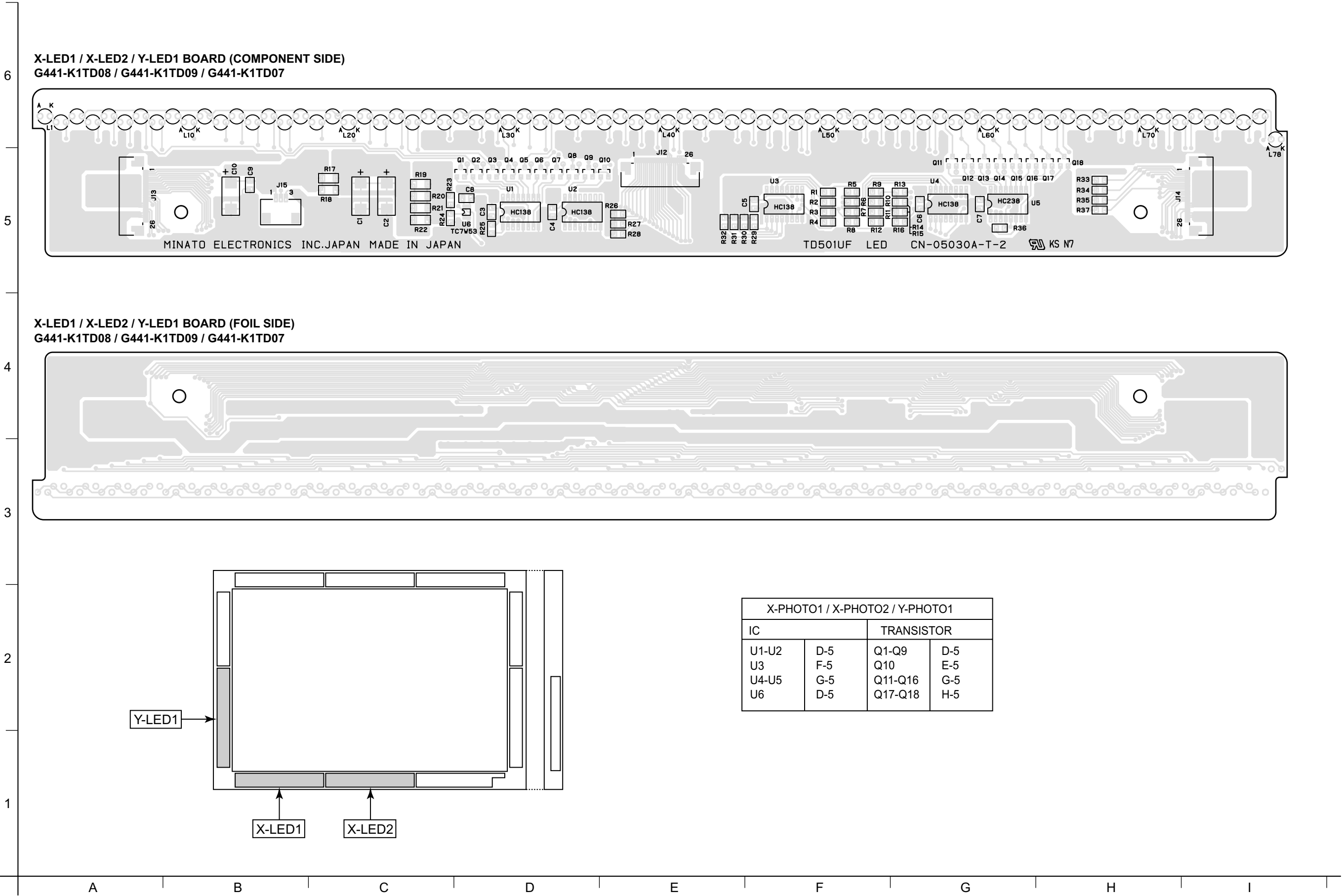
X-PHOTO4			
IC		TRANSISTOR	
U1	D-5	Q1	C-5
U2	E-5		
U3-U6	D-5		
U7-U8	C-5		

A B C D E F G H I

8.5. Y-Photo2 Board (42inch)

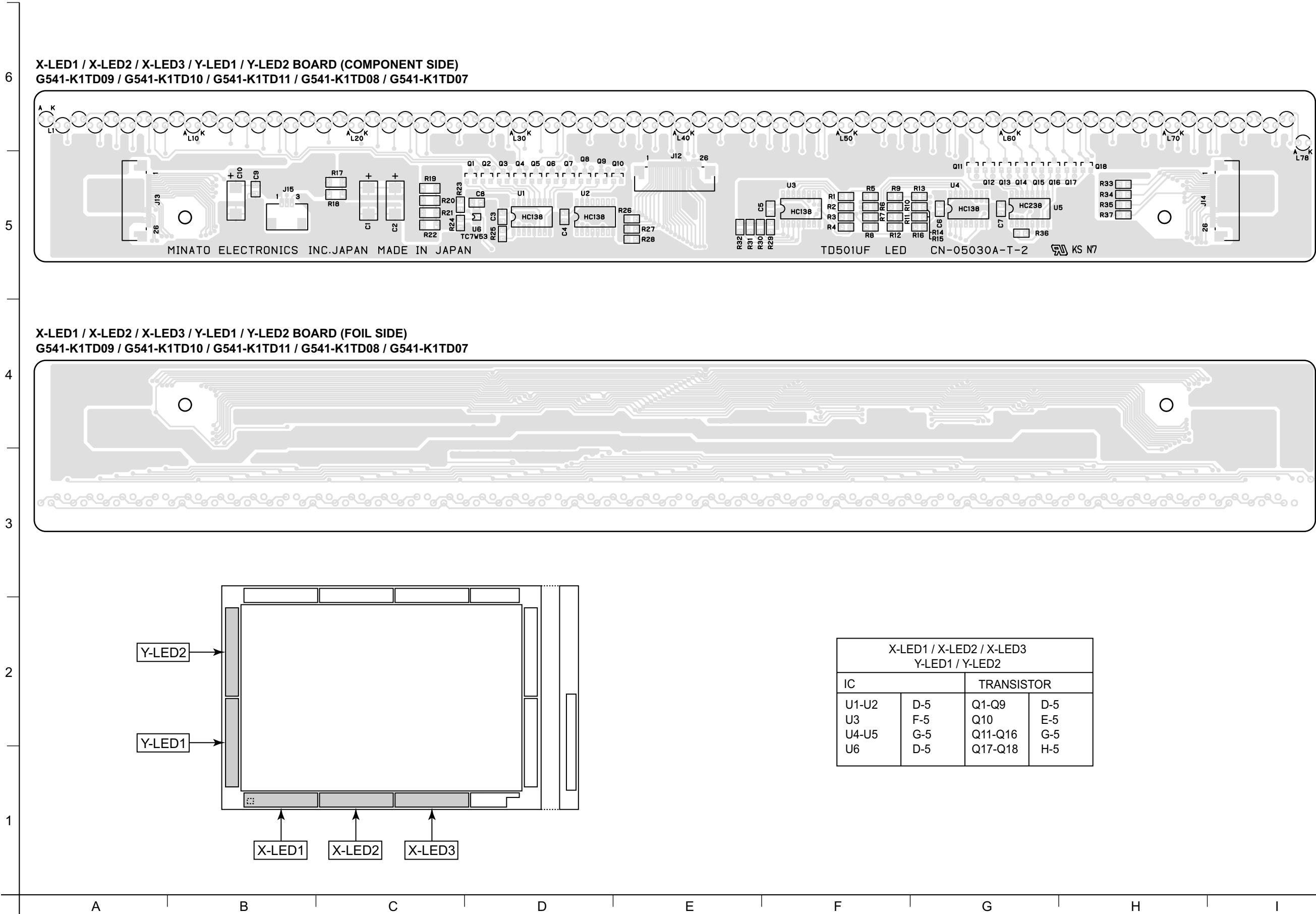


8.6. X-LED1, X-LED2, Y-LED1 Board (42inch)

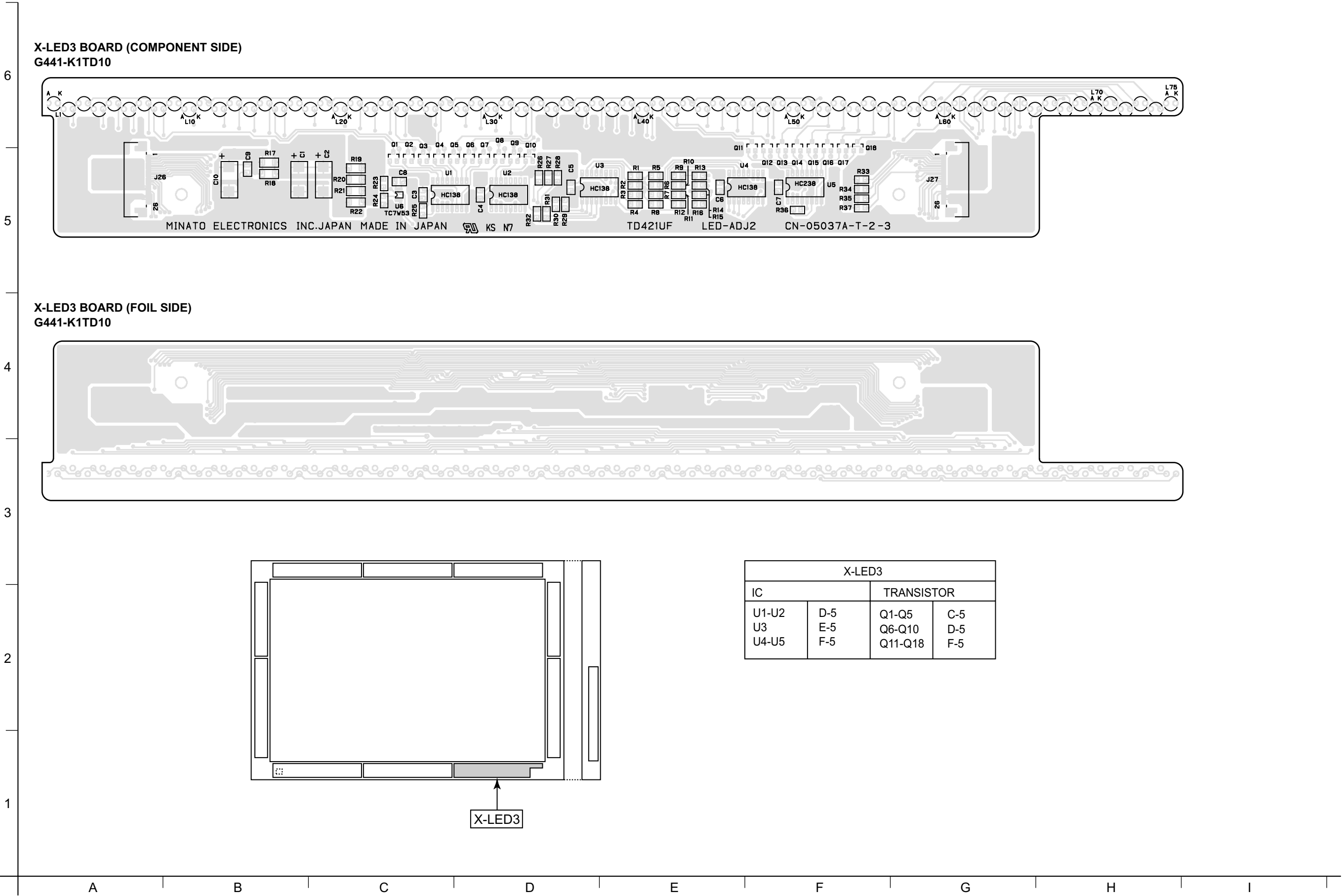




8.7. X-LED1, X-LED2, X-LED3, Y-LED1, Y-LED2 Board (50inch)

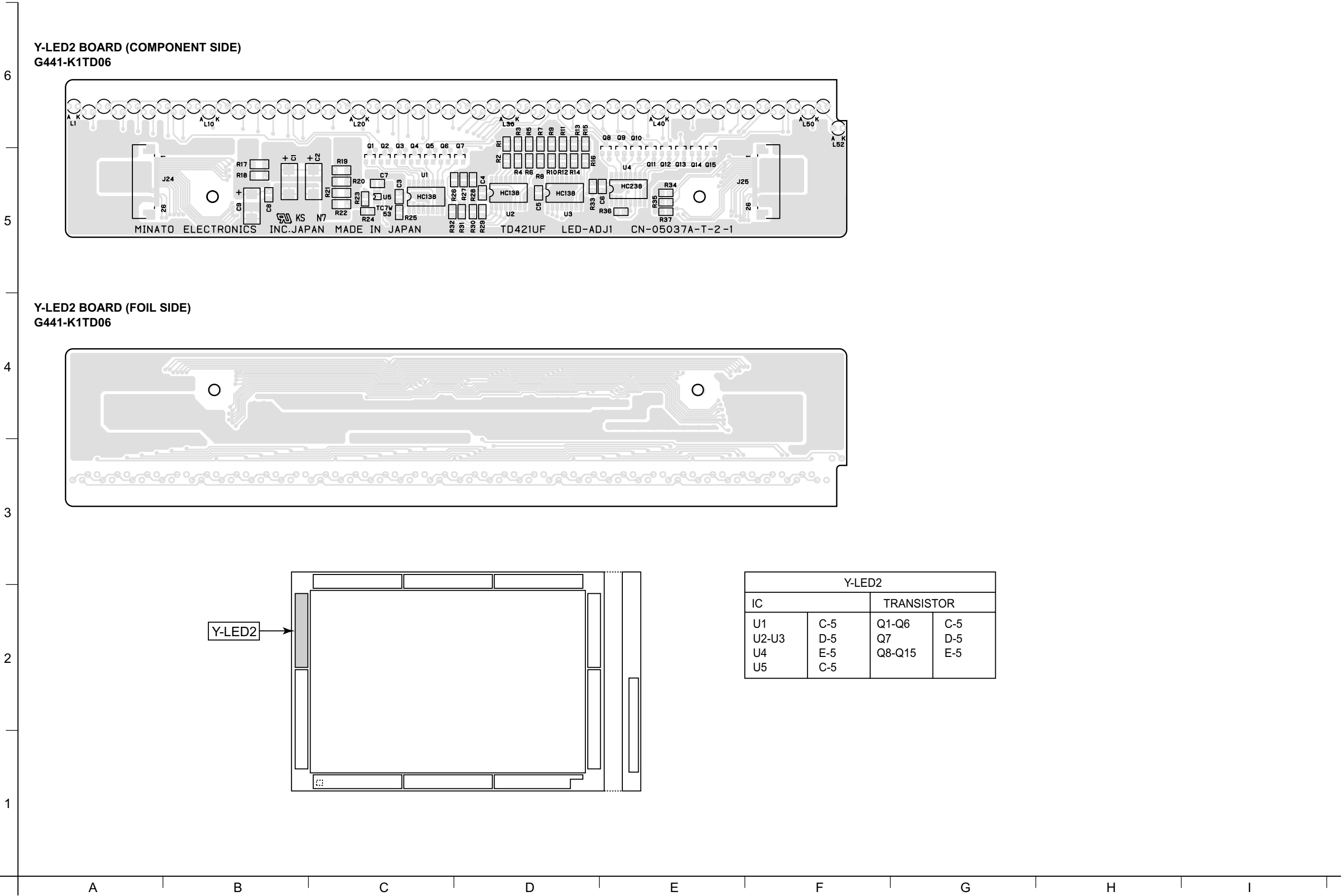


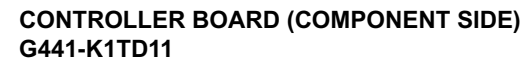
8.8. X-LED3 Board (42inch)





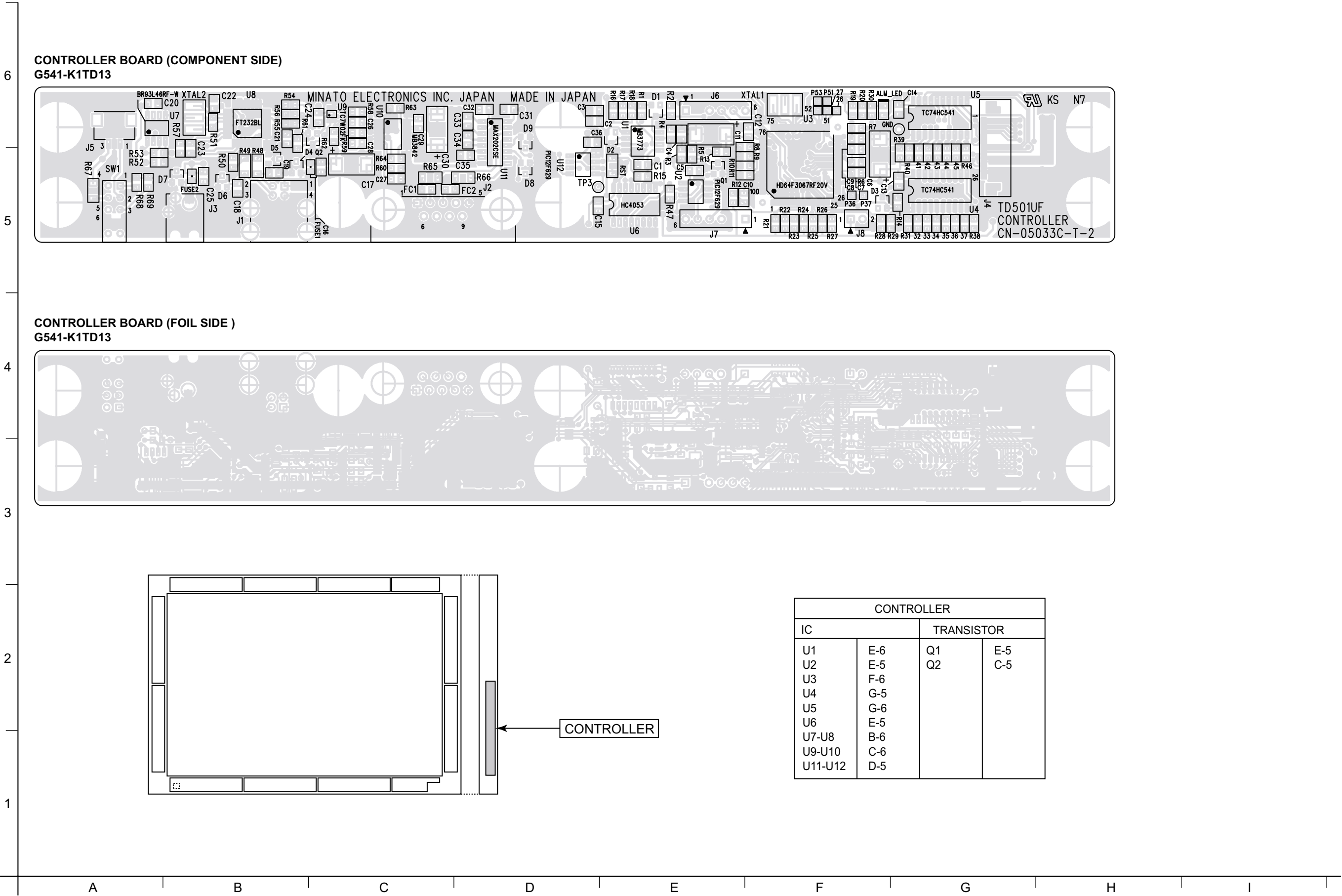
8.10. Y-LED2 Board (42inch)



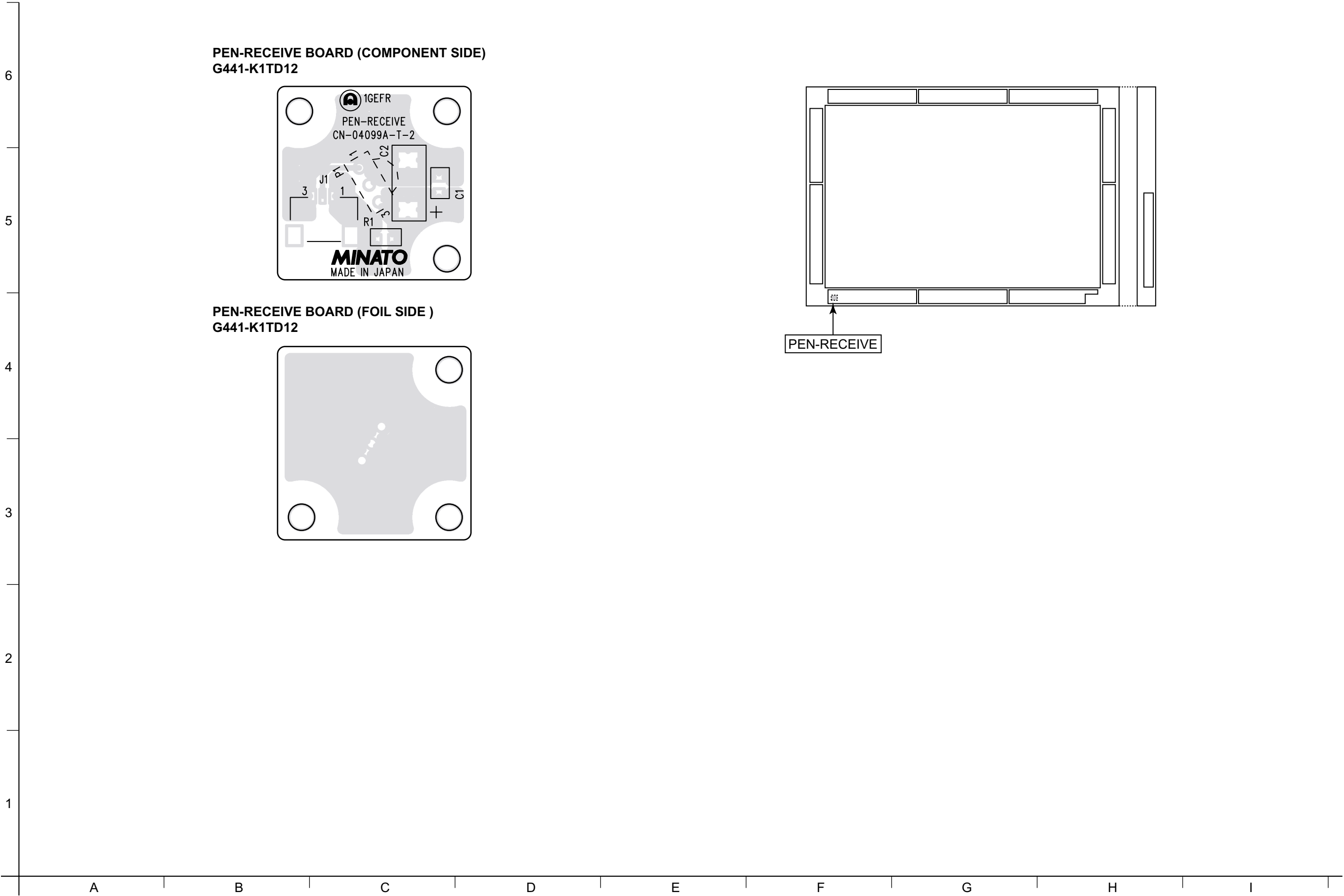


CONTROLLER			
IC		TRANSISTOR	
U1	E-6	Q1	E-5
U2	E-5	Q2	C-5
U3	F-6		
U4	G-5		
U5	G-6		
U6	E-5		
U7-U8	B-6		
U9-U10	C-6		
U11-U12	D-5		

8.12. Controller Board (50inch)



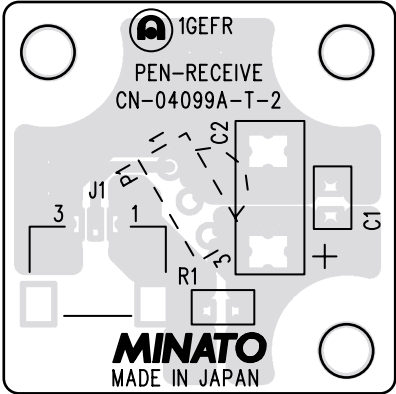
8.13. Pen-Receive Board (42inch)



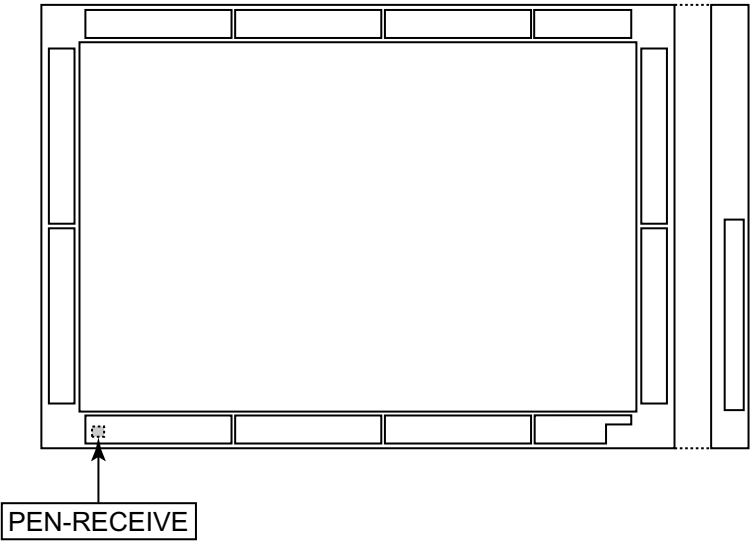
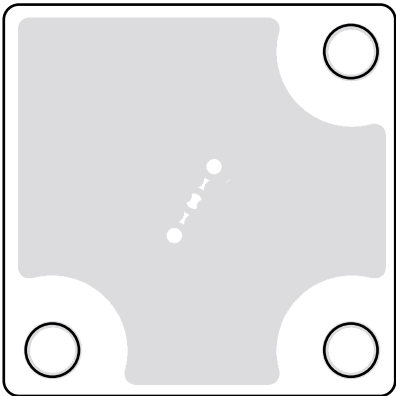
8.14. Pen-Receive Board (50inch)

6  
5  
4  
3  
2  
1

PEN-RECEIVE BOARD (COMPONENT SIDE)  
541-K1TD14



PEN-RECEIVE BOARD (FOIL SIDE )  
G541-K1TD14



A

B

C

D

E

F

G

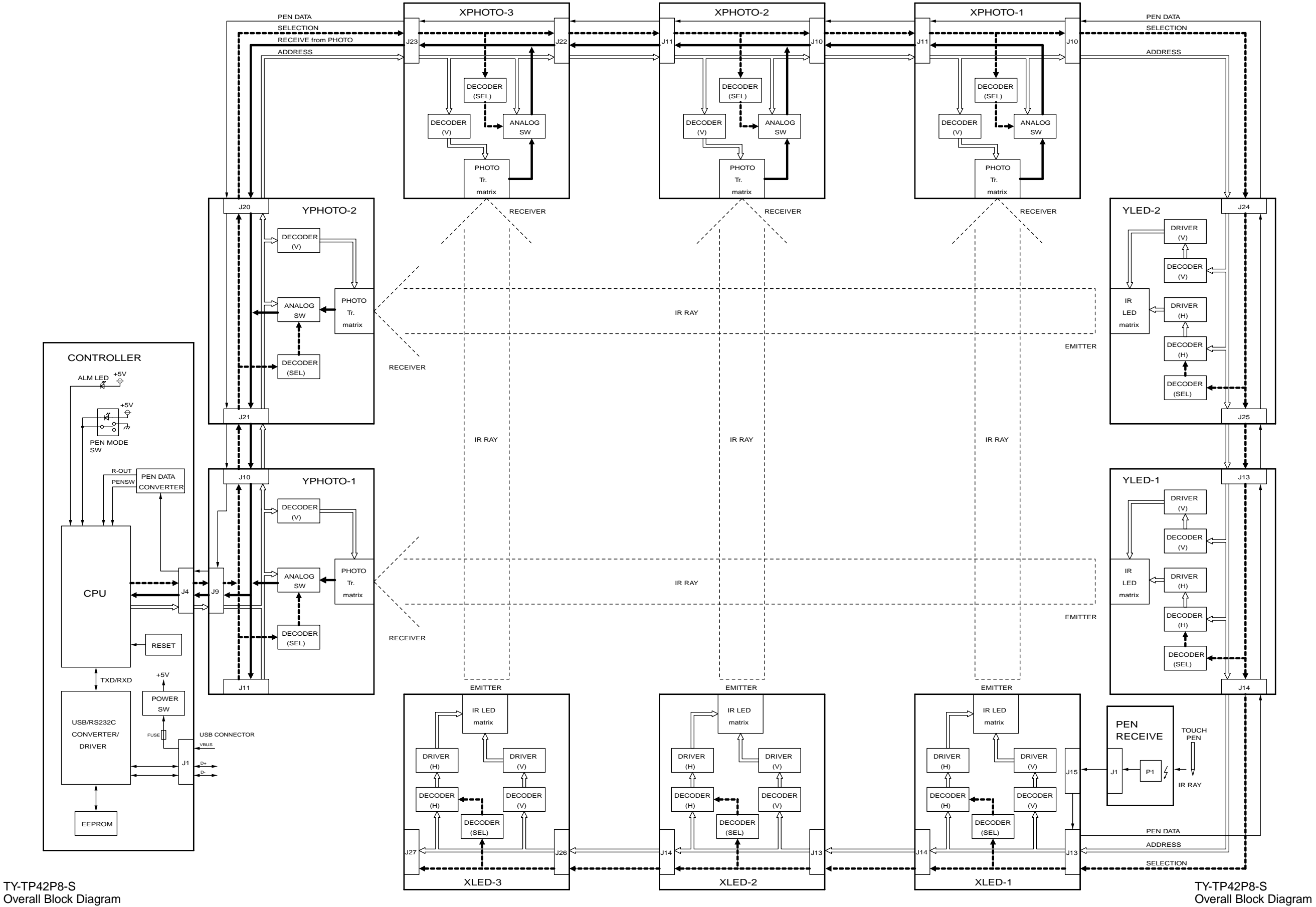
H

I



# 9 Block Diagram

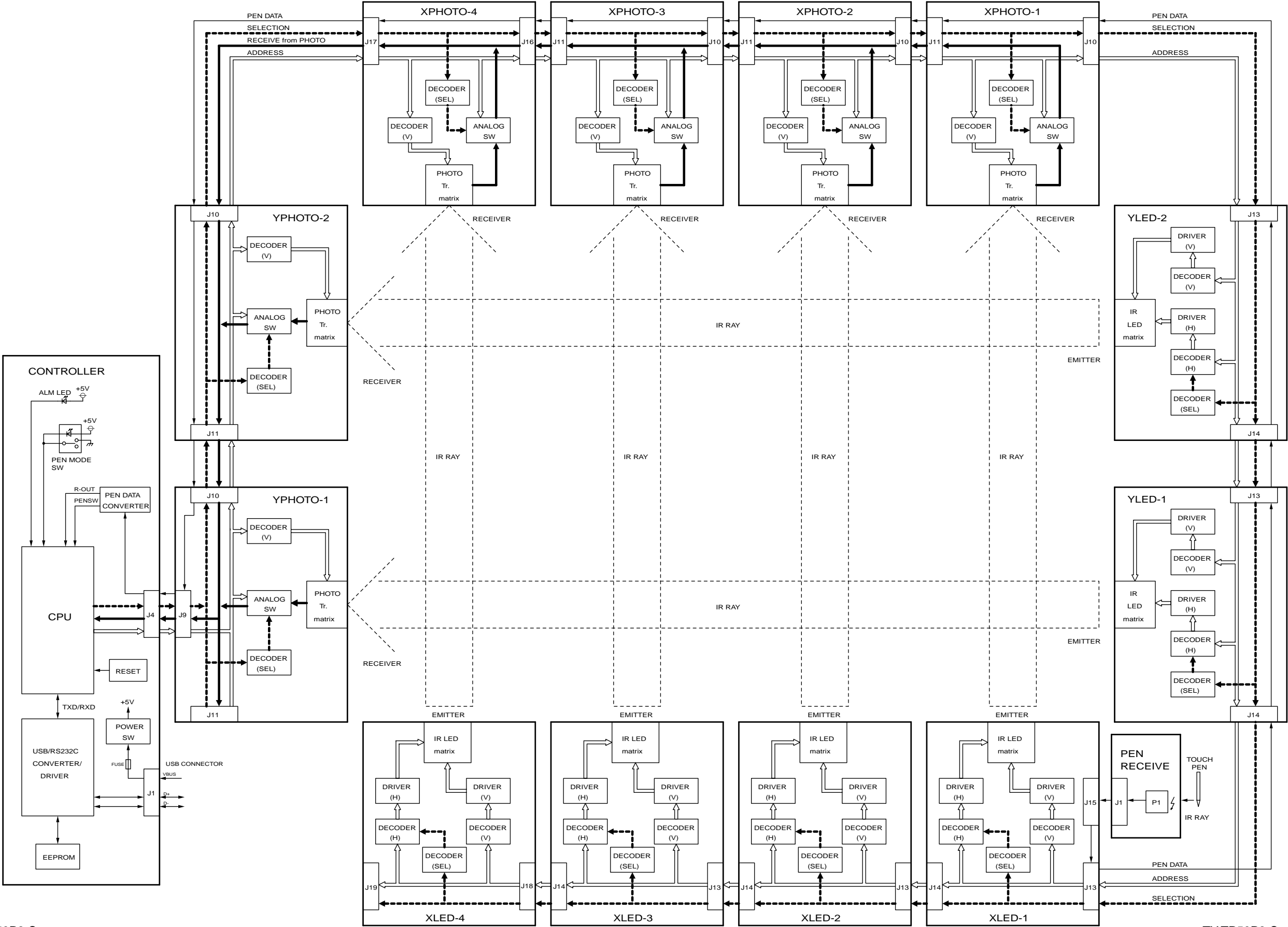
## 9.1. Overall Block Diagram (TY-TP42P8-S)



TY-TP42P8-S  
Overall Block Diagram

TY-TP42P8-S  
Overall Block Diagram

9.2. Overall Block Diagram (TY-TP50P8-S)

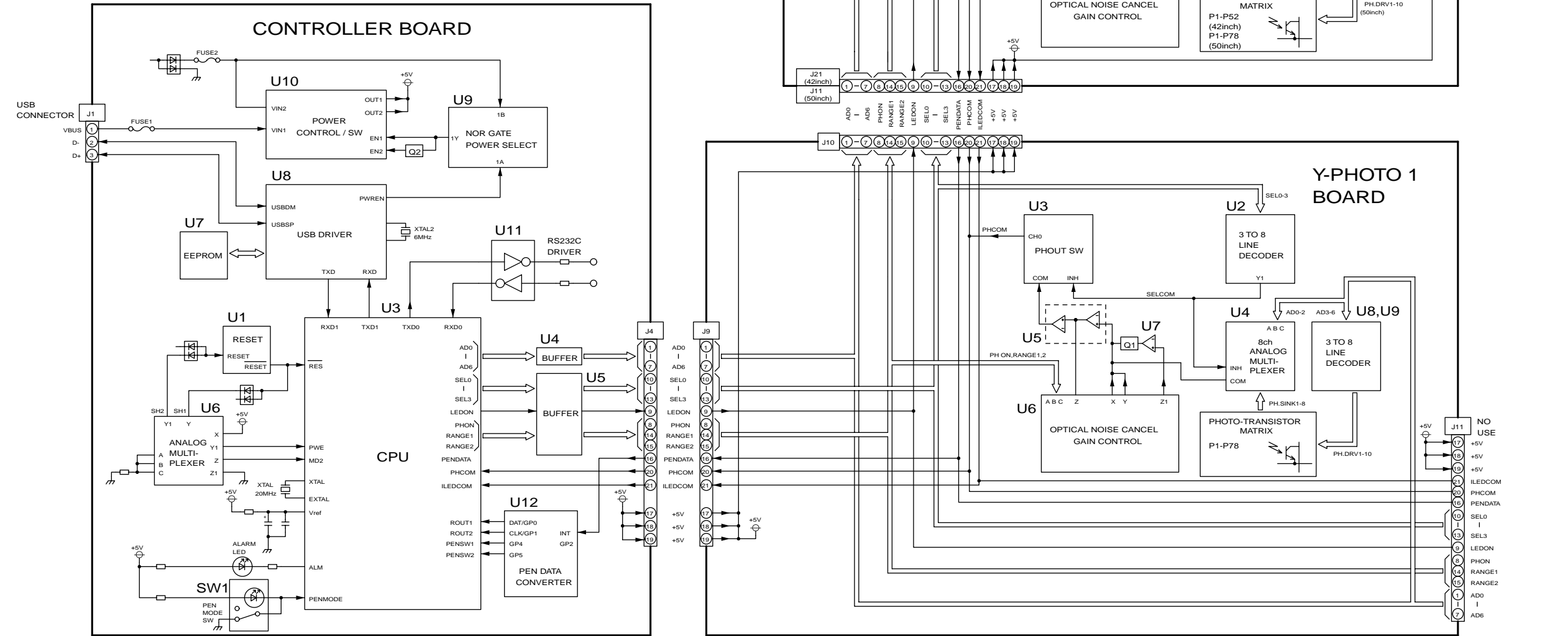


TY-TP50P8-S  
Overall Block Diagram

TY-TP50P8-S  
Overall Block Diagram

### 9.3. Detail Block Diagram (1 of 3)

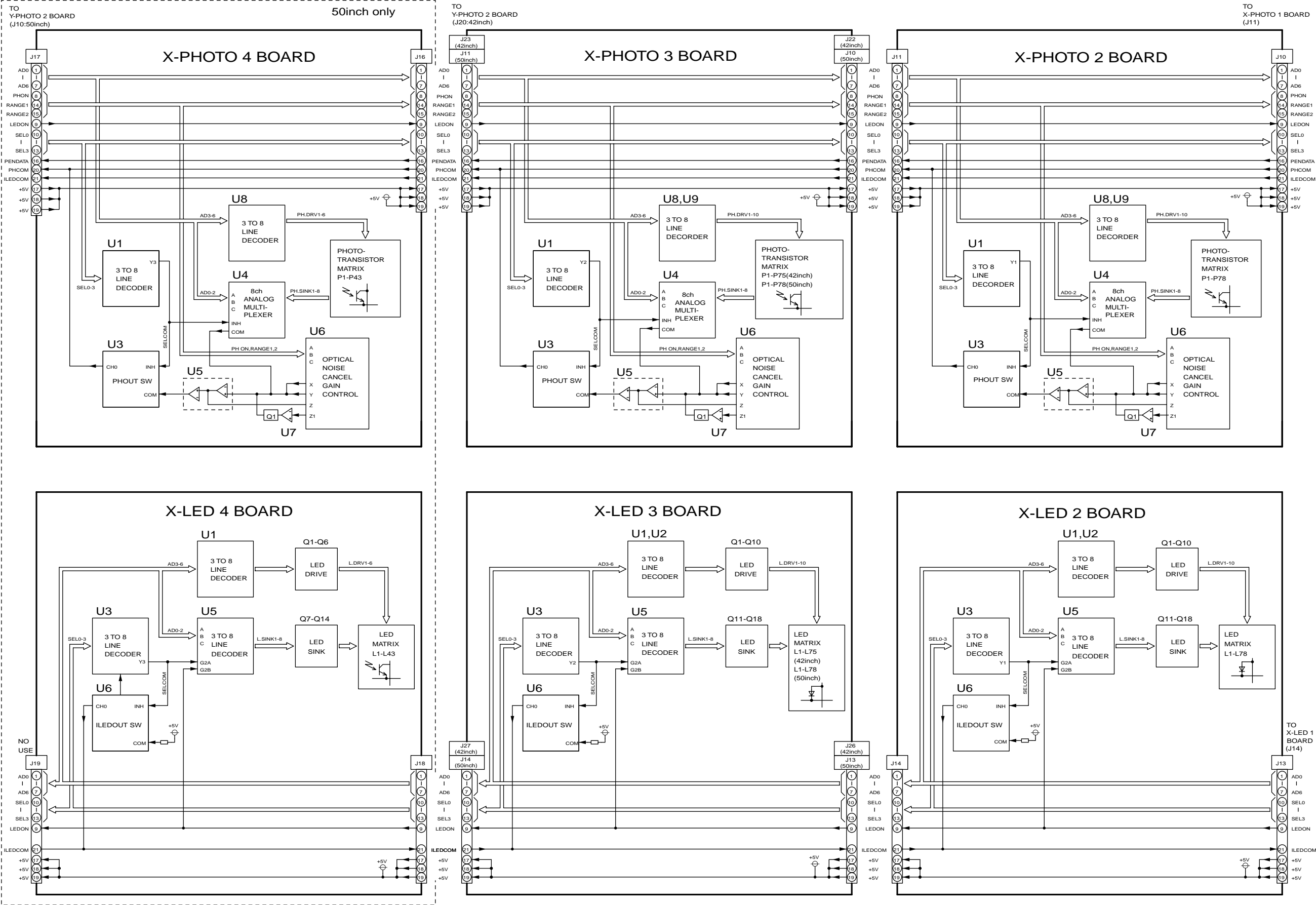
Signal explanations																																																																			
Signal	Function																																																																		
AD0-6	Address signals to switch LEDs and photo-transistors																																																																		
SEL0-3	<div>Selection signals for the LED and photo-transistor boards.(active LOW)</div> <div>Selection for 3 to 8 line decoder.</div> <div><div>3 TO 8 LINE DECODER(X-PHOTO:U1,X-LED:U3)</div><table><tr><th>G2A</th><th>C</th><th>B</th><th>A</th><th>Y0</th><th>Y1</th><th>Y2</th><th>Y3</th><th>Selection board</th></tr><tr><td>L</td><td>L</td><td>L</td><td>L</td><td>L</td><td></td><td></td><td></td><td>X-PHOTO 1 &amp; X-LED 1</td></tr><tr><td>L</td><td>L</td><td>L</td><td>H</td><td></td><td>L</td><td></td><td></td><td>X-PHOTO 2 &amp; X-LED 2</td></tr><tr><td>L</td><td>L</td><td>H</td><td>L</td><td></td><td></td><td>L</td><td></td><td>X-PHOTO 3 &amp; X-LED 3</td></tr><tr><td>L</td><td>L</td><td>H</td><td>H</td><td></td><td></td><td></td><td>L</td><td>X-PHOTO 4 &amp; X-LED 4</td></tr></table><div>3 TO 8 LINE DECODER(Y-PHOTO:U2,Y-LED:U4)</div><table><tr><th>G2A</th><th>C</th><th>B</th><th>A</th><th>Y0</th><th>Y1</th><th>Selection board</th></tr><tr><td>L</td><td>L</td><td>L</td><td>L</td><td>L</td><td></td><td>Y-PHOTO 1 &amp; Y-LED 1</td></tr><tr><td>L</td><td>L</td><td>L</td><td>H</td><td></td><td>L</td><td>Y-PHOTO 2 &amp; Y-LED 2</td></tr></table></div>	G2A	C	B	A	Y0	Y1	Y2	Y3	Selection board	L	L	L	L	L				X-PHOTO 1 & X-LED 1	L	L	L	H		L			X-PHOTO 2 & X-LED 2	L	L	H	L			L		X-PHOTO 3 & X-LED 3	L	L	H	H				L	X-PHOTO 4 & X-LED 4	G2A	C	B	A	Y0	Y1	Selection board	L	L	L	L	L		Y-PHOTO 1 & Y-LED 1	L	L	L	H		L	Y-PHOTO 2 & Y-LED 2
G2A	C	B	A	Y0	Y1	Y2	Y3	Selection board																																																											
L	L	L	L	L				X-PHOTO 1 & X-LED 1																																																											
L	L	L	H		L			X-PHOTO 2 & X-LED 2																																																											
L	L	H	L			L		X-PHOTO 3 & X-LED 3																																																											
L	L	H	H				L	X-PHOTO 4 & X-LED 4																																																											
G2A	C	B	A	Y0	Y1	Selection board																																																													
L	L	L	L	L		Y-PHOTO 1 & Y-LED 1																																																													
L	L	L	H		L	Y-PHOTO 2 & Y-LED 2																																																													
RANGE1-2	Signals to change photo-transistor gain.																																																																		
PHCOM1-4	Photo-transistor output signal(analog voltage) output from each photo-transistor board.																																																																		
LEDON	Signals to light IR-LED.(active LOW)																																																																		
PHON	Signals to activate photo-transistor.(active LOW)																																																																		



TY-TP42/50P8-S  
Detail Block Diagram (1 of 3)

TY-TP42/50P8-S  
Detail Block Diagram (1 of 3)

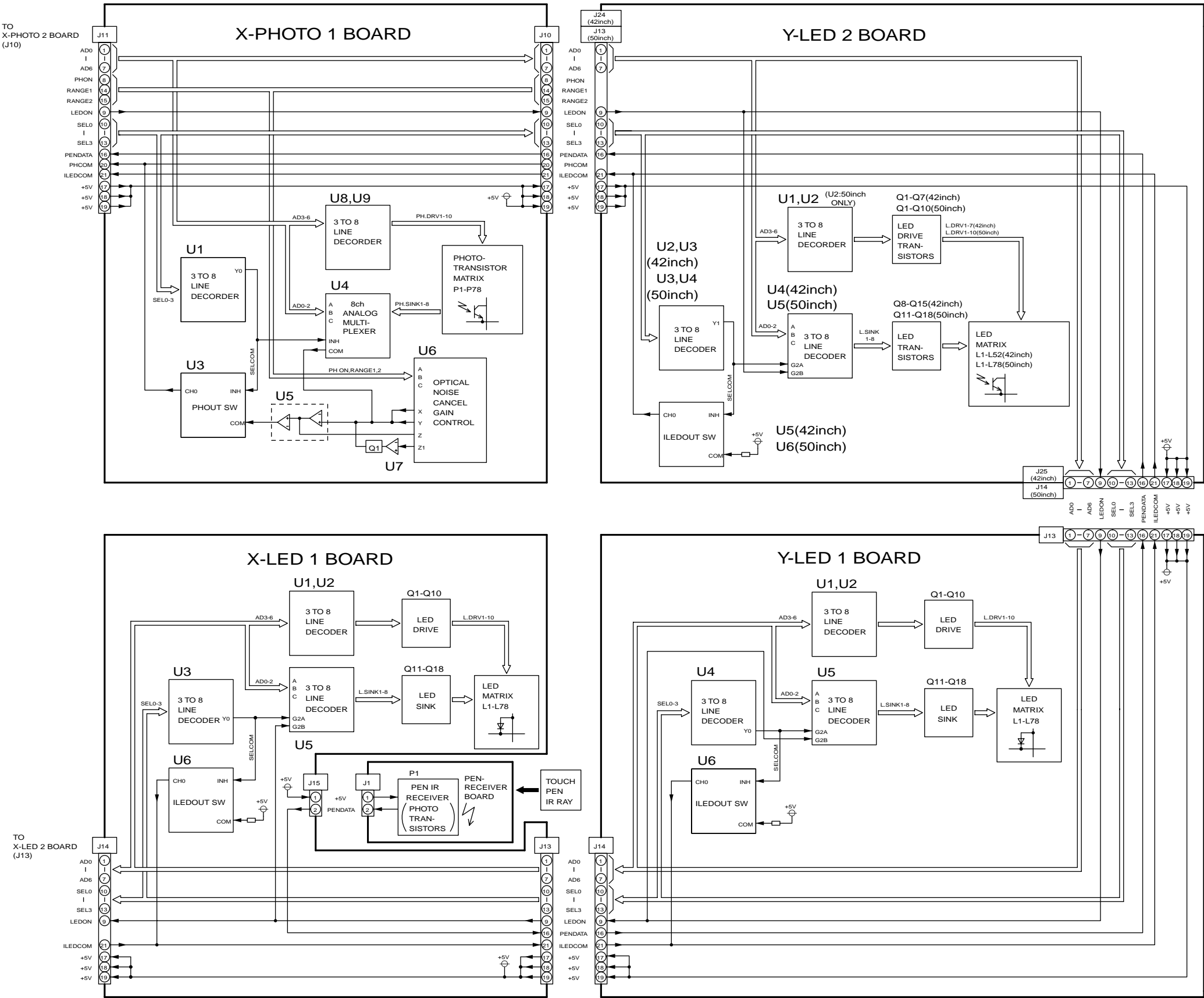
9.4. Detail Block Diagram (2 of 3)



TY-TP42/50P8-S  
Detail Block Diagram (2 of 3)

TY-TP42/50P8-S  
Detail Block Diagram (2 of 3)

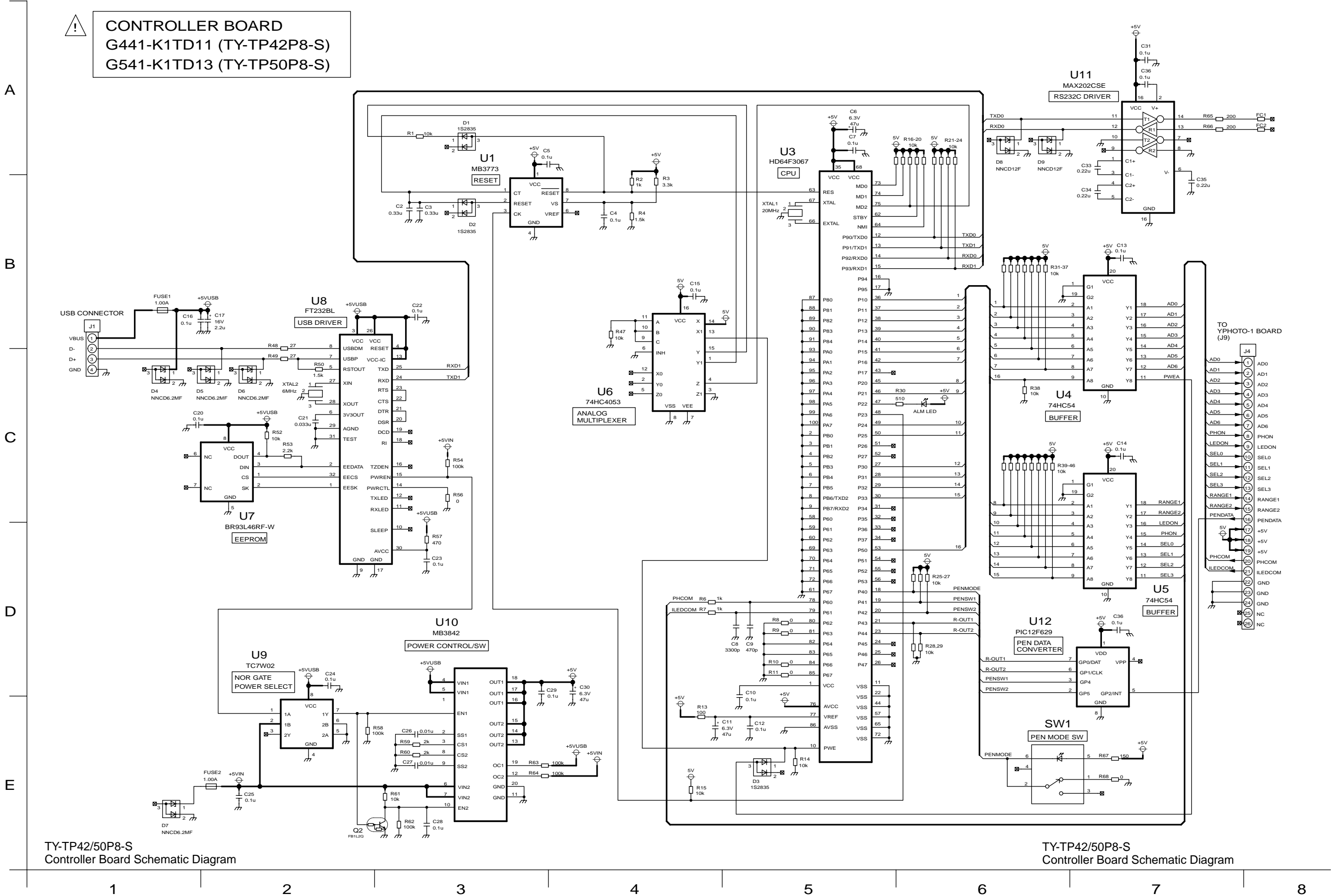
### 9.5. Detail Block Diagram (3 of 3)





# 10 Schematic Diagram

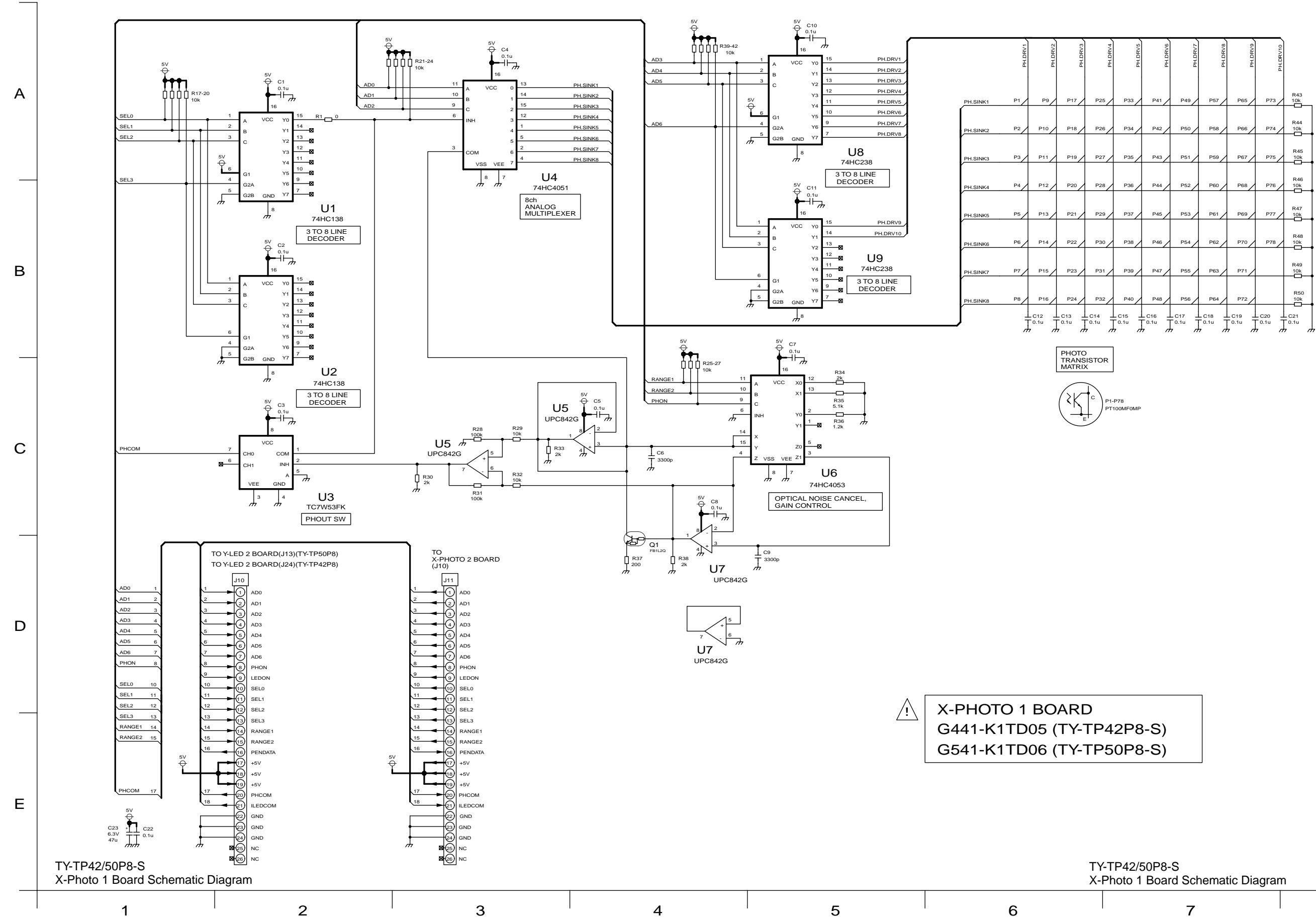
## 10.1. Controller Board Schematic Diagram



TY-TP42/50P8-S  
Controller Board Schematic Diagram

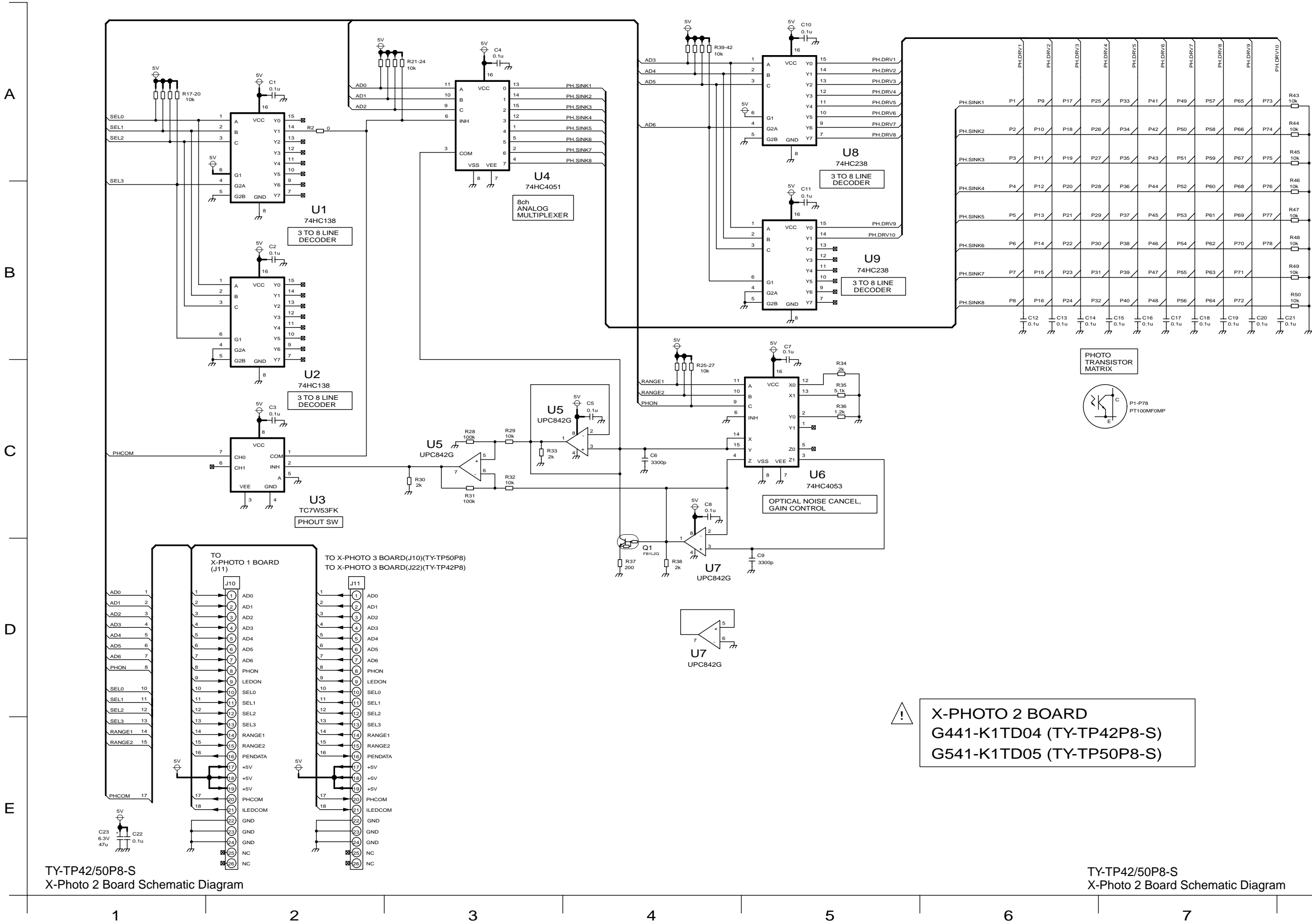
TY-TP42/50P8-S  
Controller Board Schematic Diagram

10.2. X-Photo 1 Board Schematic Diagram



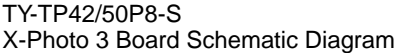


# 10.3. X-Photo 2 Board Schematic Diagram

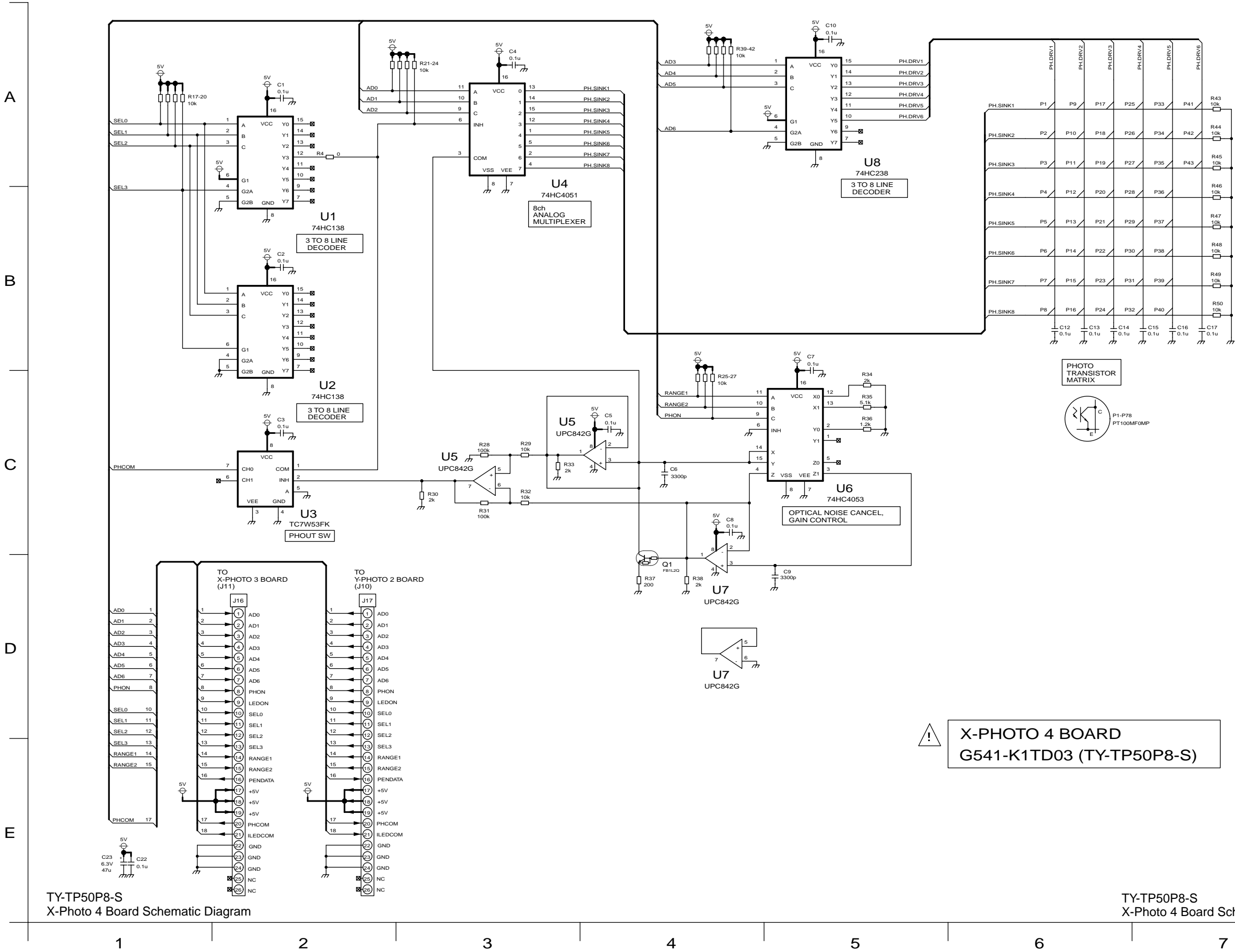


TY-TP42/50P8-S  
X-Photo 2 Board Schematic Diagram

TY-TP42/50P8-S  
X-Photo 2 Board Schematic Diagram



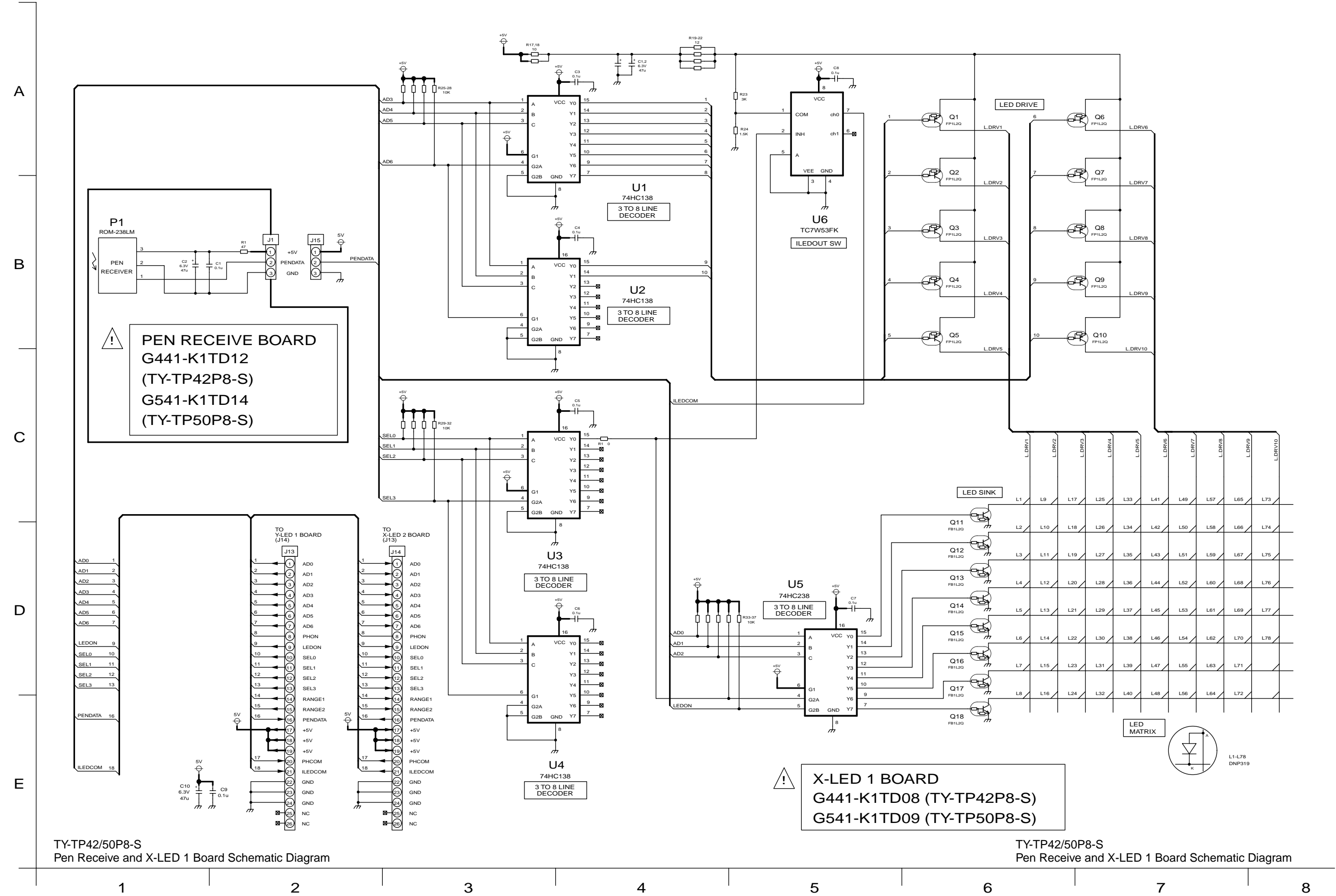
10.5. X-Photo 4 Board Schematic Diagram (TY-TP50P8-S)



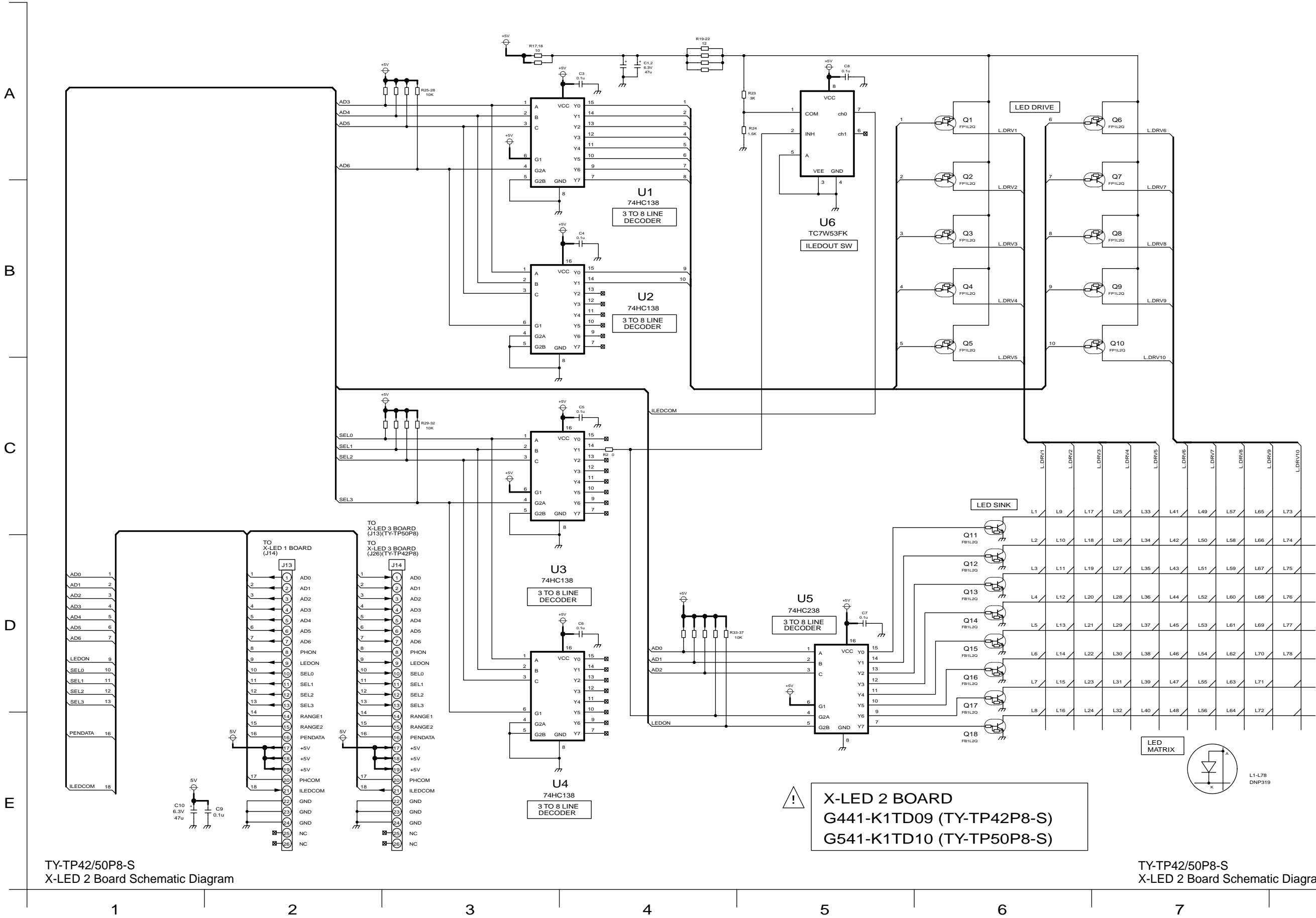
TY-TP50P8-S  
X-Photo 4 Board Schematic Diagram

TY-TP50P8-S  
X-Photo 4 Board Schematic Diagram

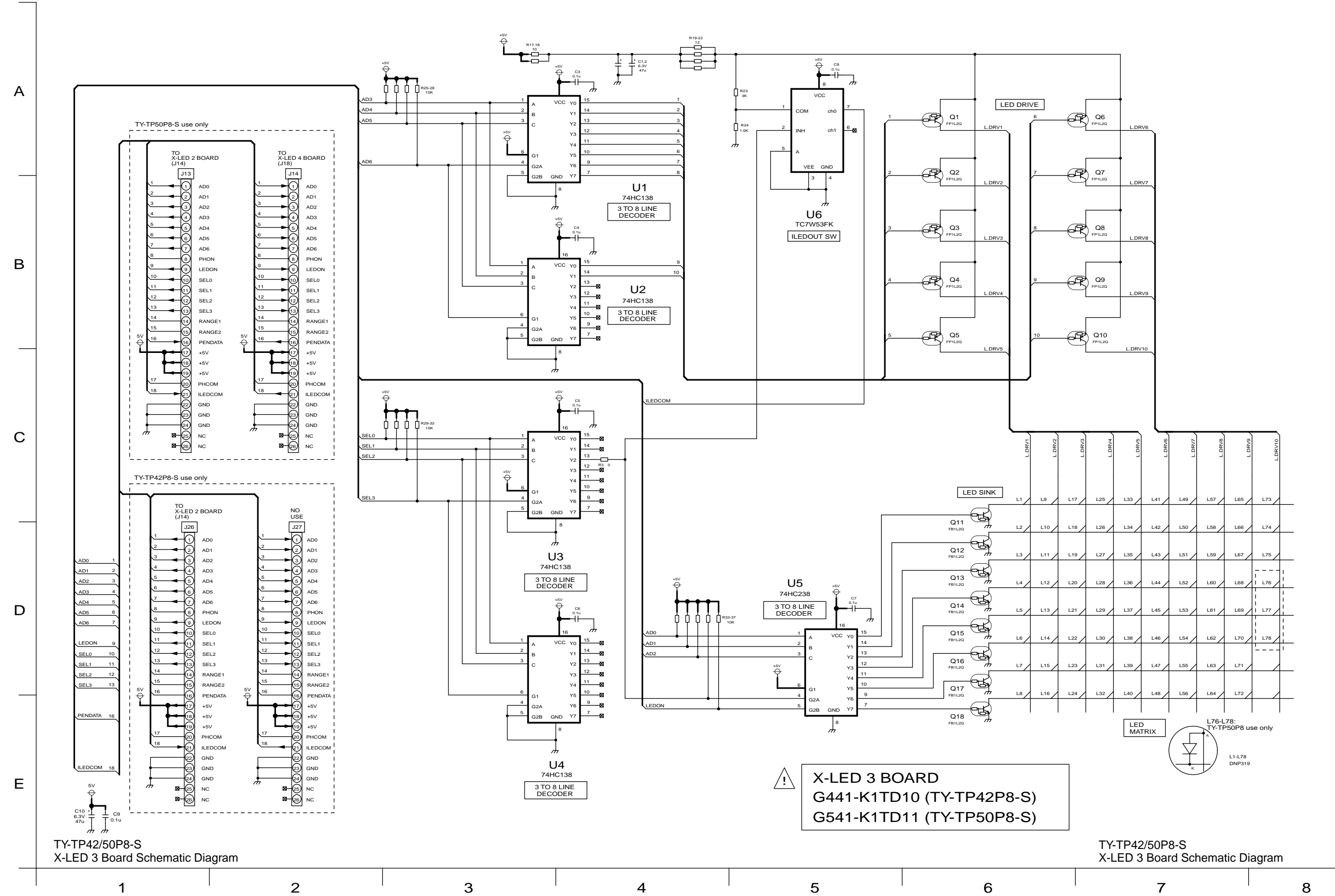
10.6. X-LED 1 Board and Pen Receive Board Schematic Diagram



10.7. X-LED 2 Board Board Schematic Diagram



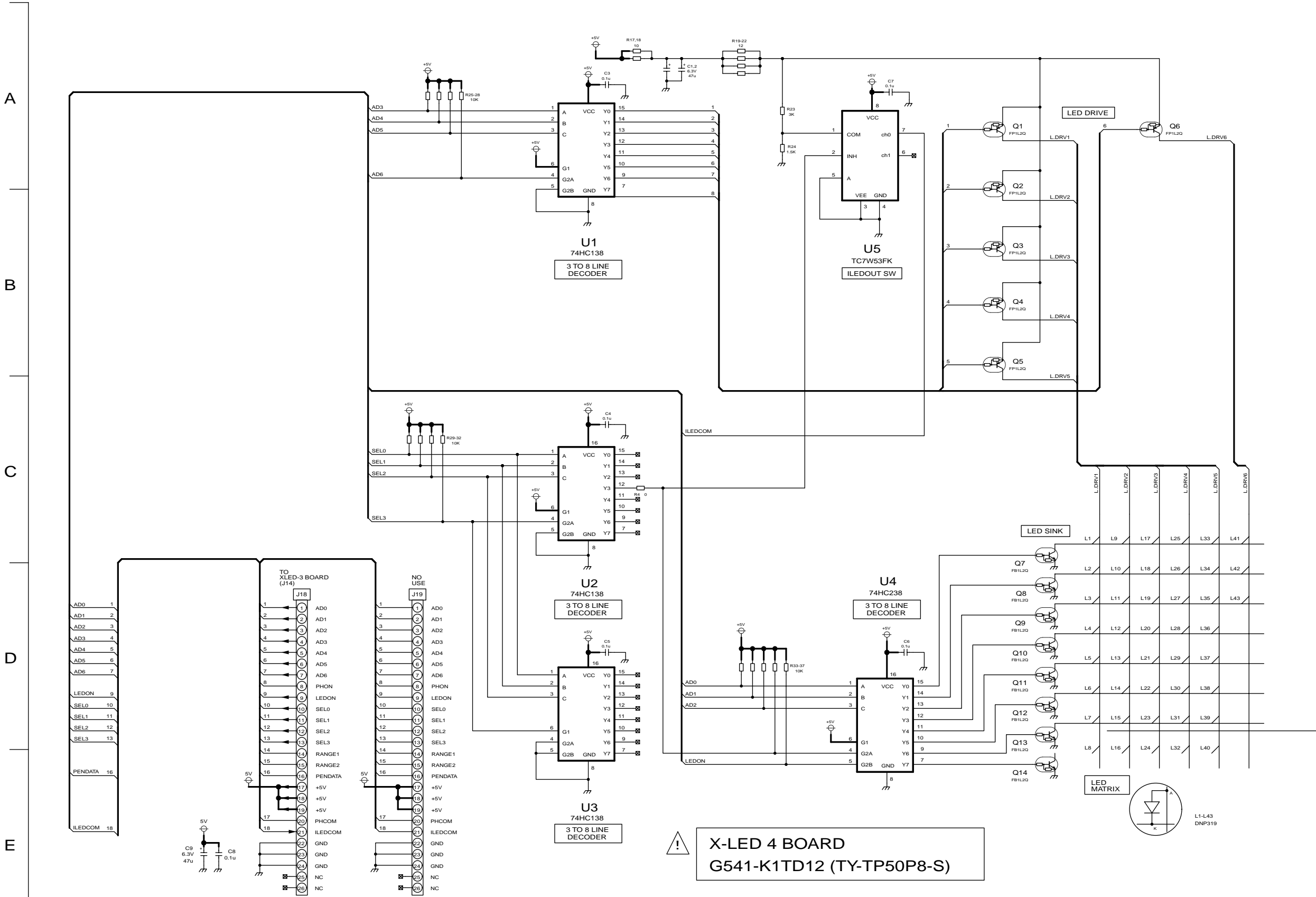
10.8. X-LED 3 Board Board Schematic Diagram



TY-TP42/50P8-S  
X-LED 3 Board Schematic Diagram

TY-TP42/50P8-S  
X-LED 3 Board Schematic Diagram

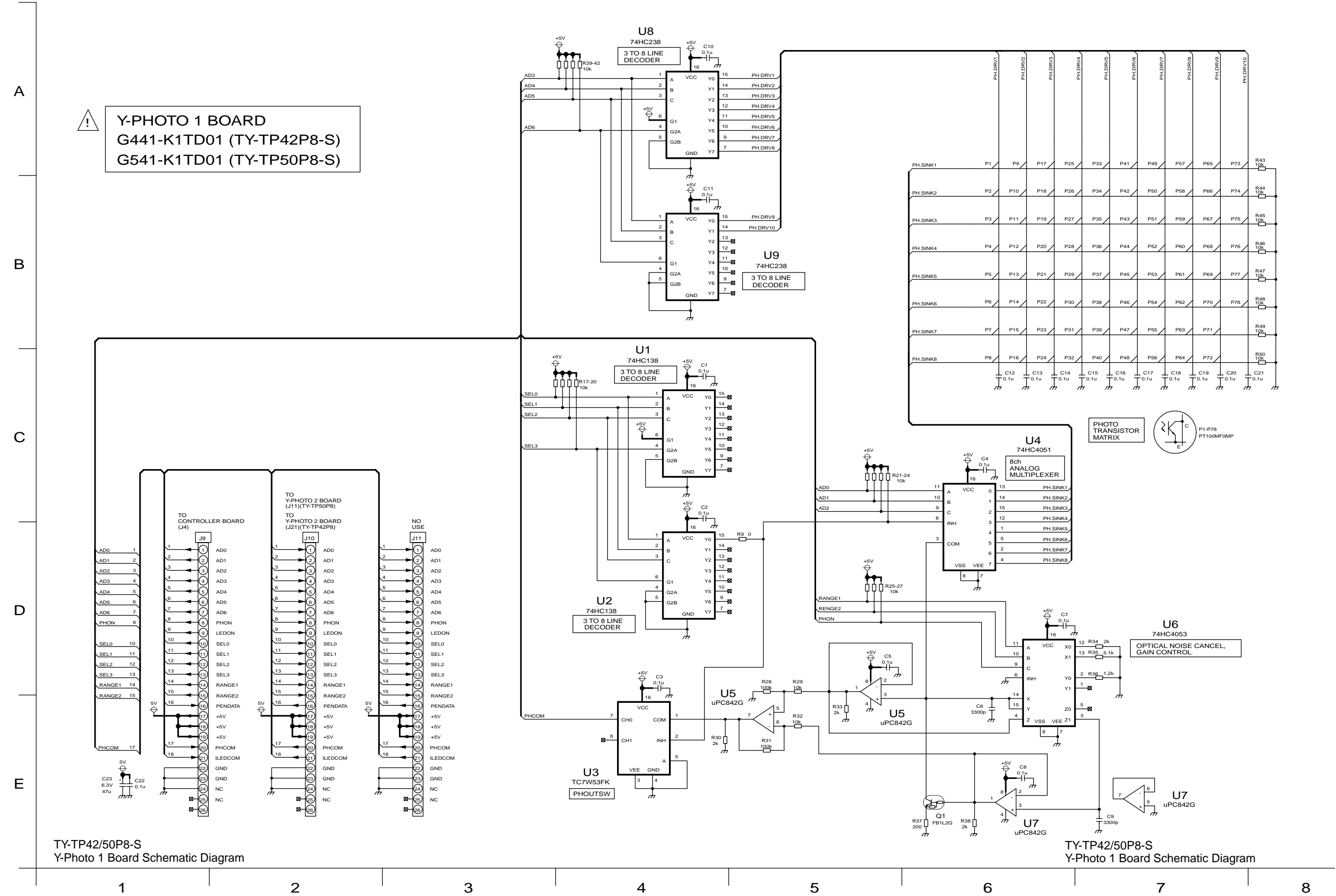
10.9. X-LED 4 Board Board Schematic Diagram (TY-TP50P8-S)



TY-TP50P8-S  
X-LED 4 Board Schematic Diagram

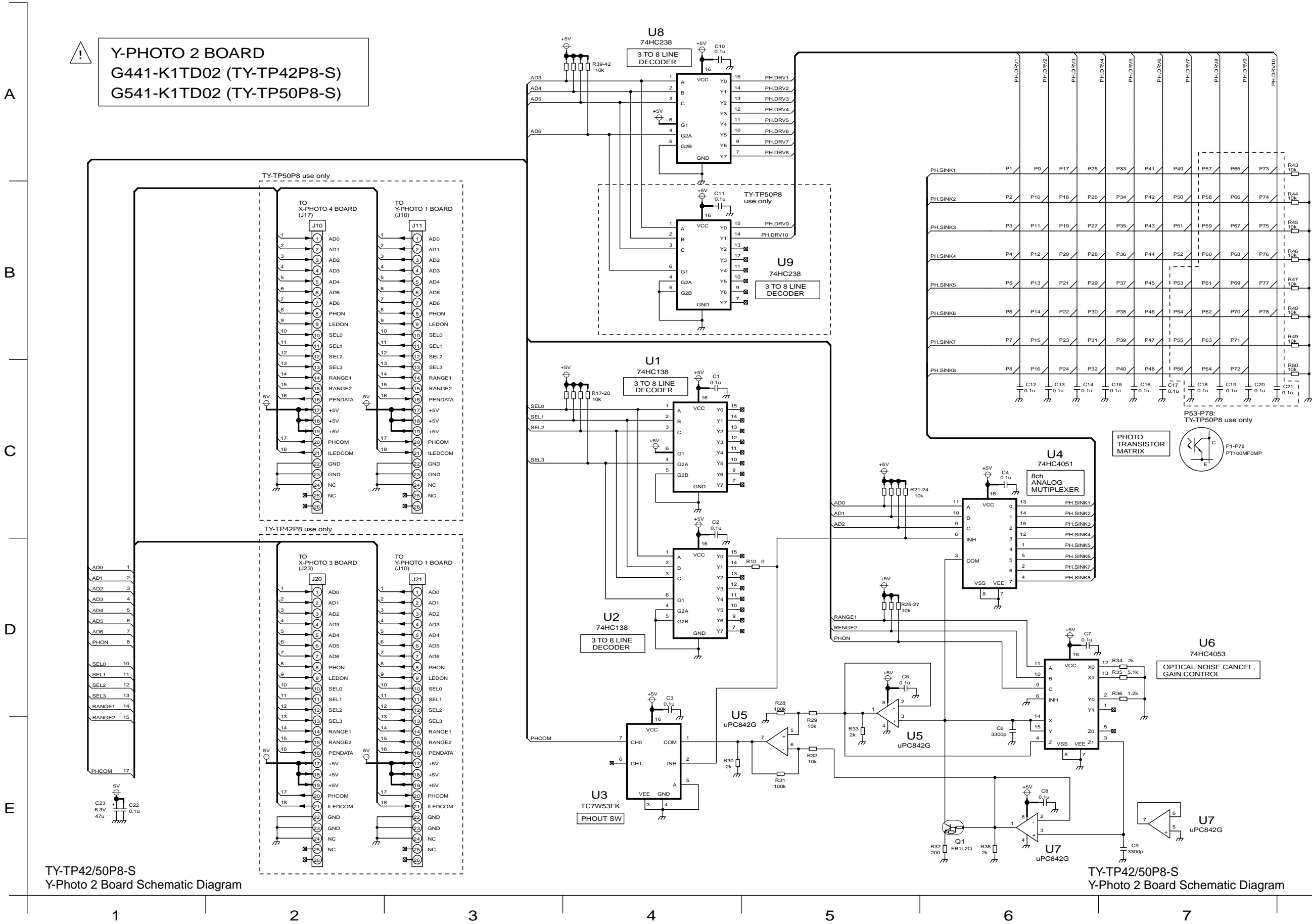
TY-TP50P8-S  
X-LED 4 Board Schematic Diagram

10.10. Y-Photo 1 Board Schematic Diagram

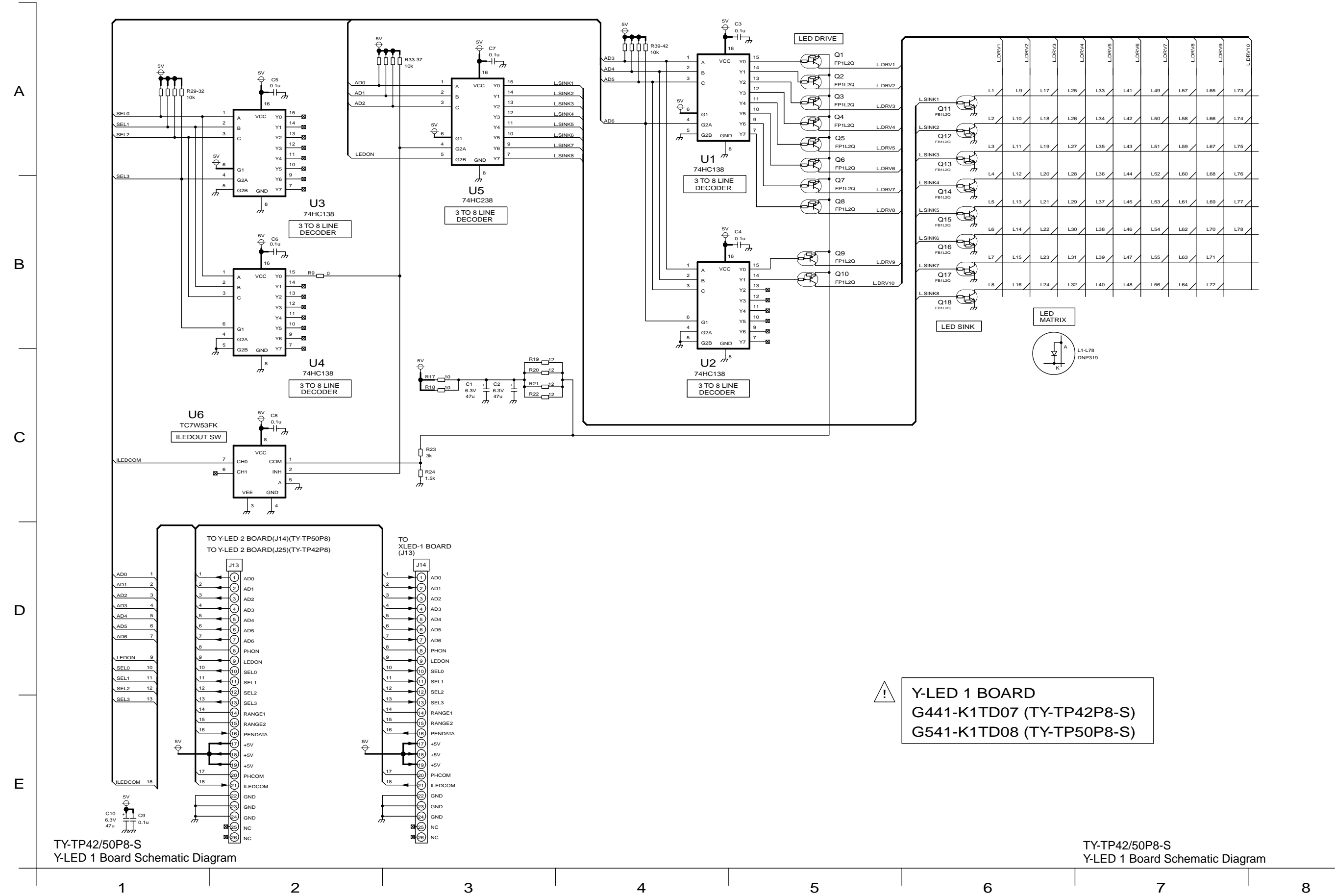




# 10.11. Y-Photo 2 Board Schematic Diagram



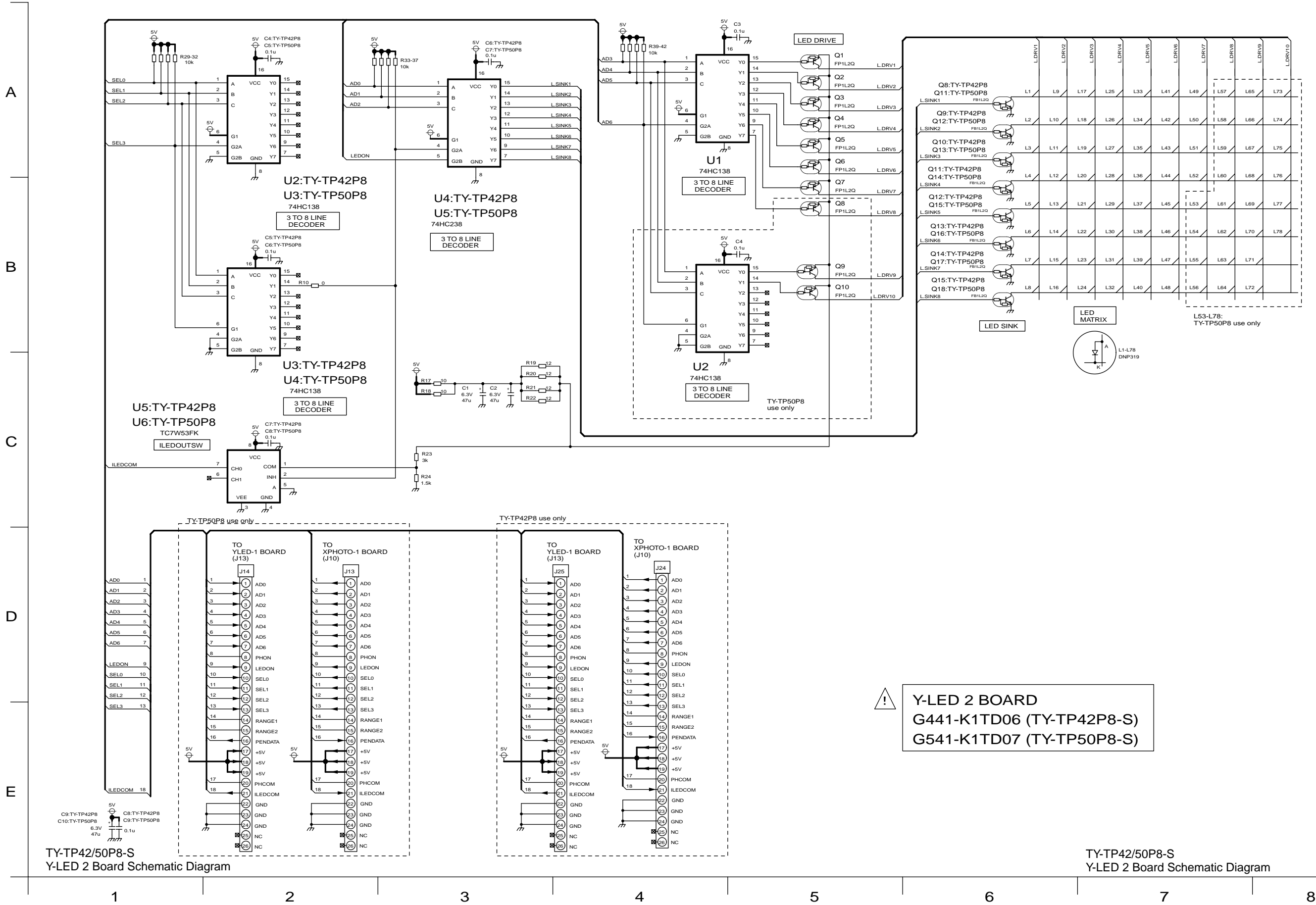
10.12. Y-LED 1 Board Schematic Diagram



TY-TP42/50P8-S  
Y-LED 1 Board Schematic Diagram

TY-TP42/50P8-S  
Y-LED 1 Board Schematic Diagram

### 10.13. Y-LED 2 Board Schematic Diagram

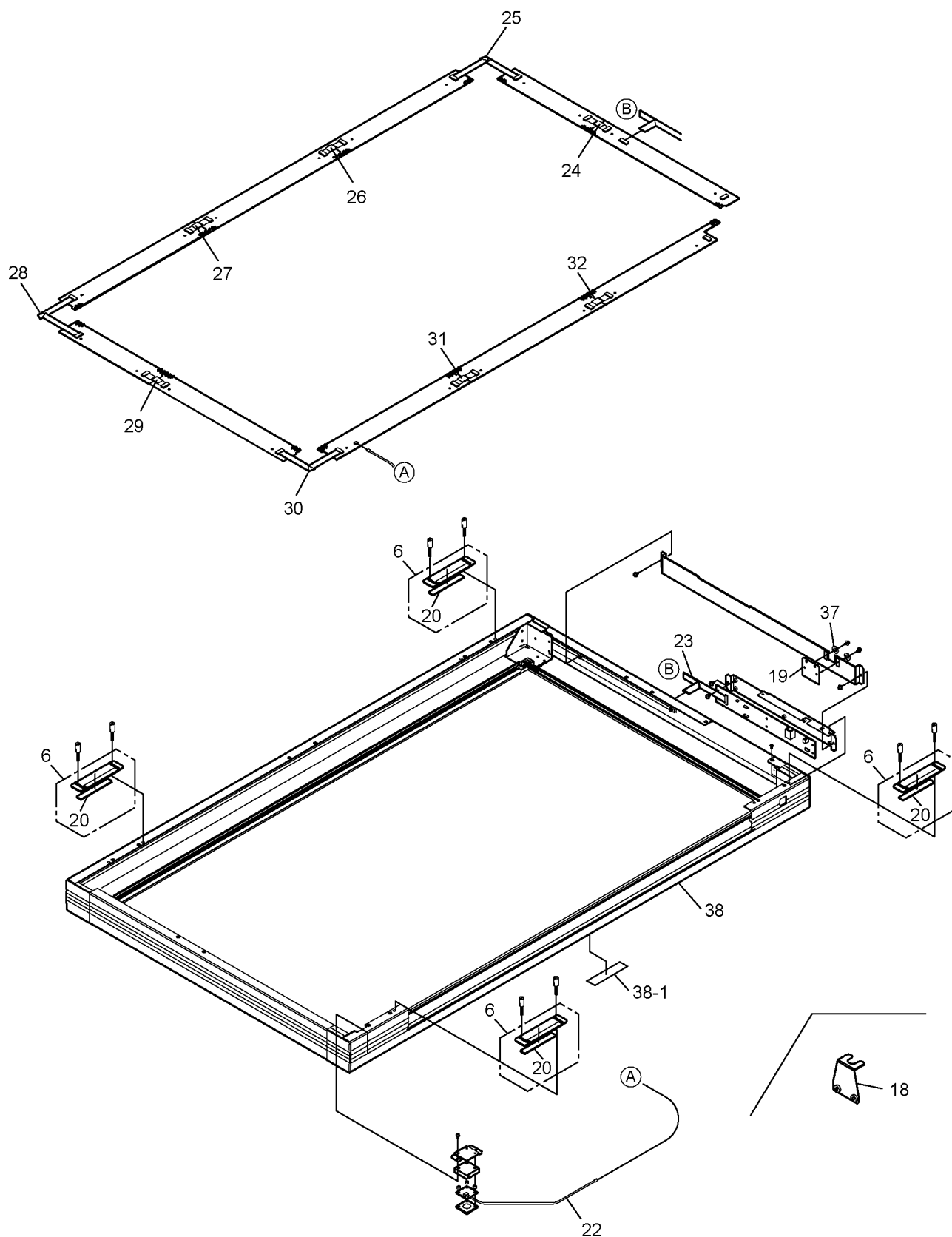




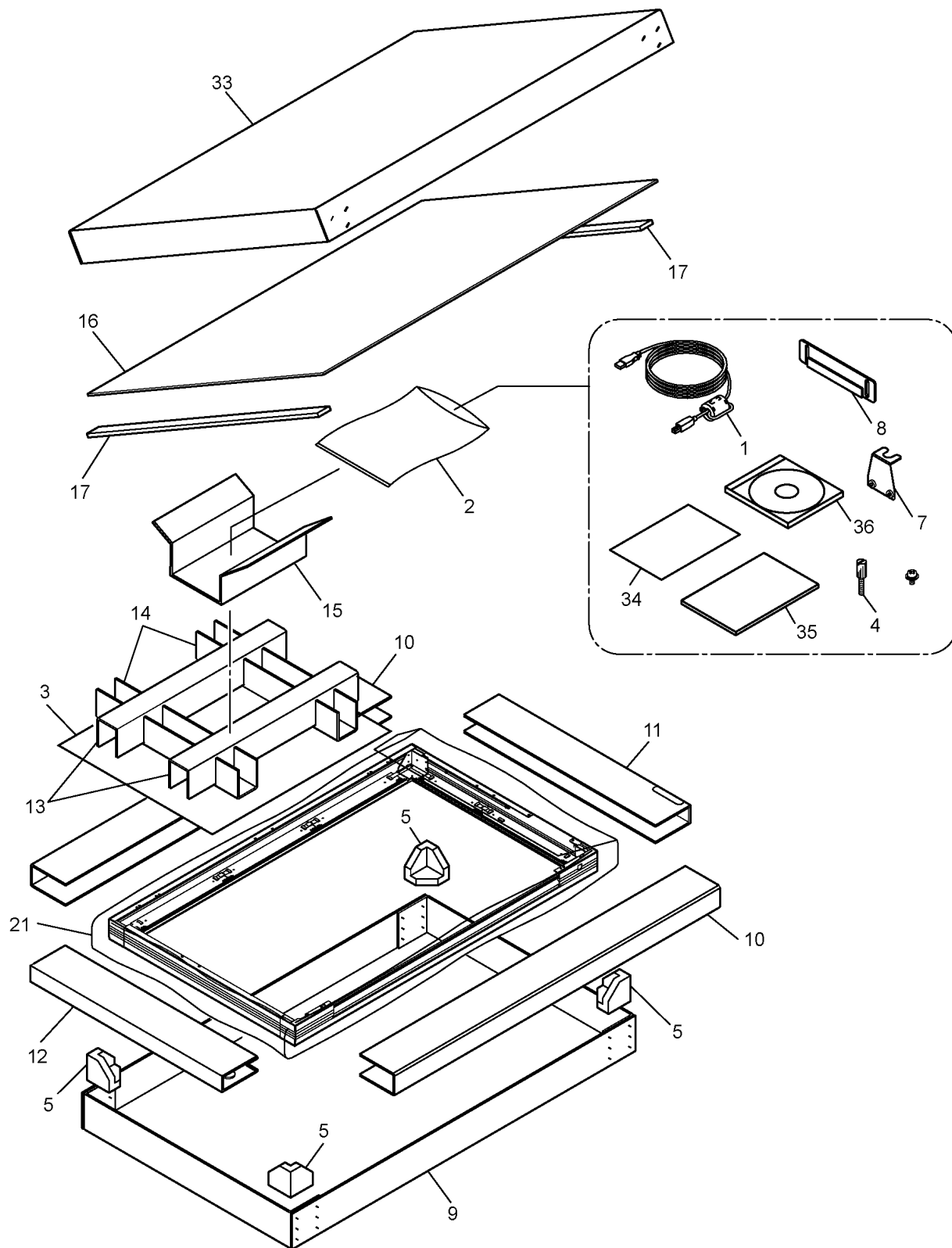
# 11 Exploded View

## 11.1. TY-TP42P8-S

Main unit

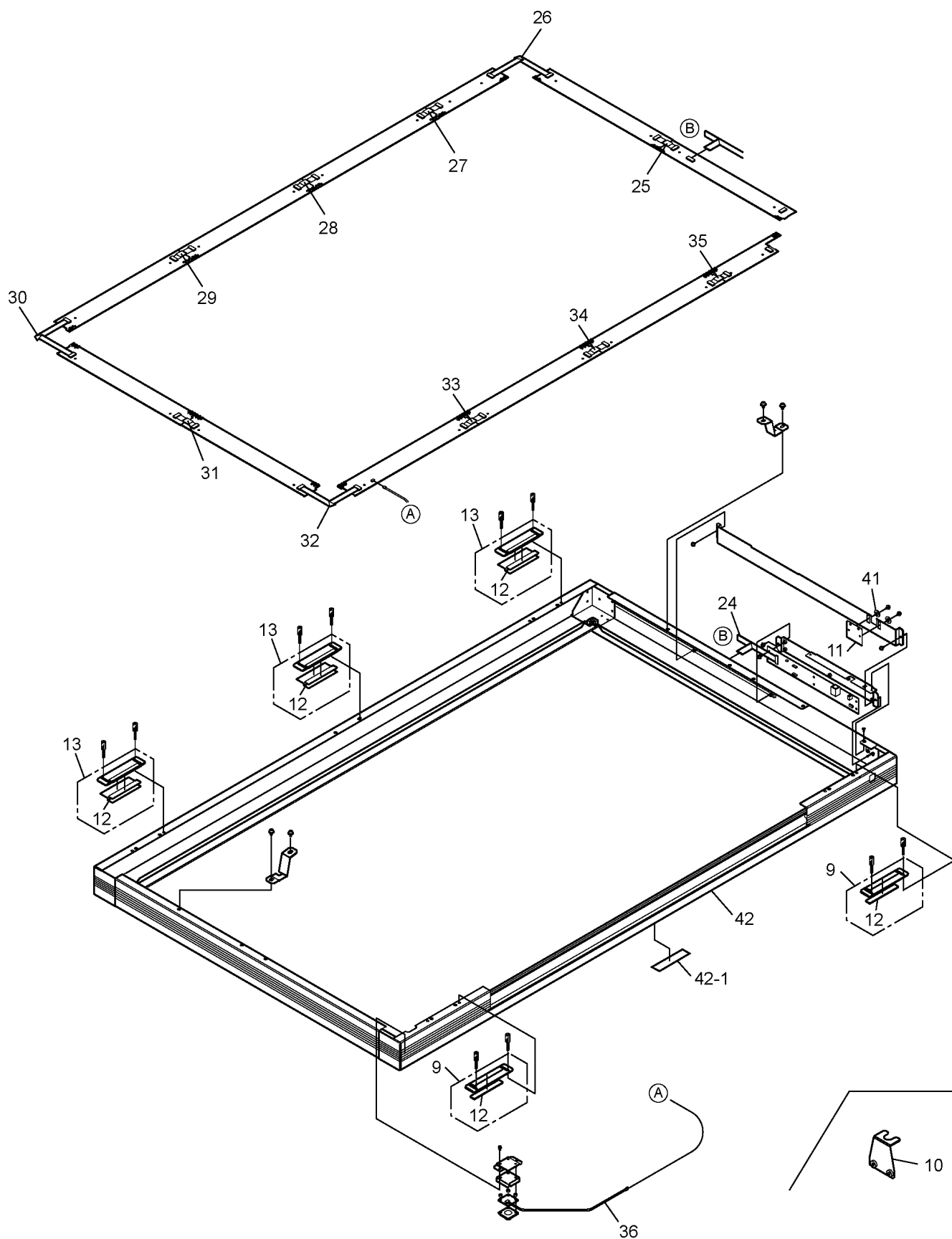


# Packing

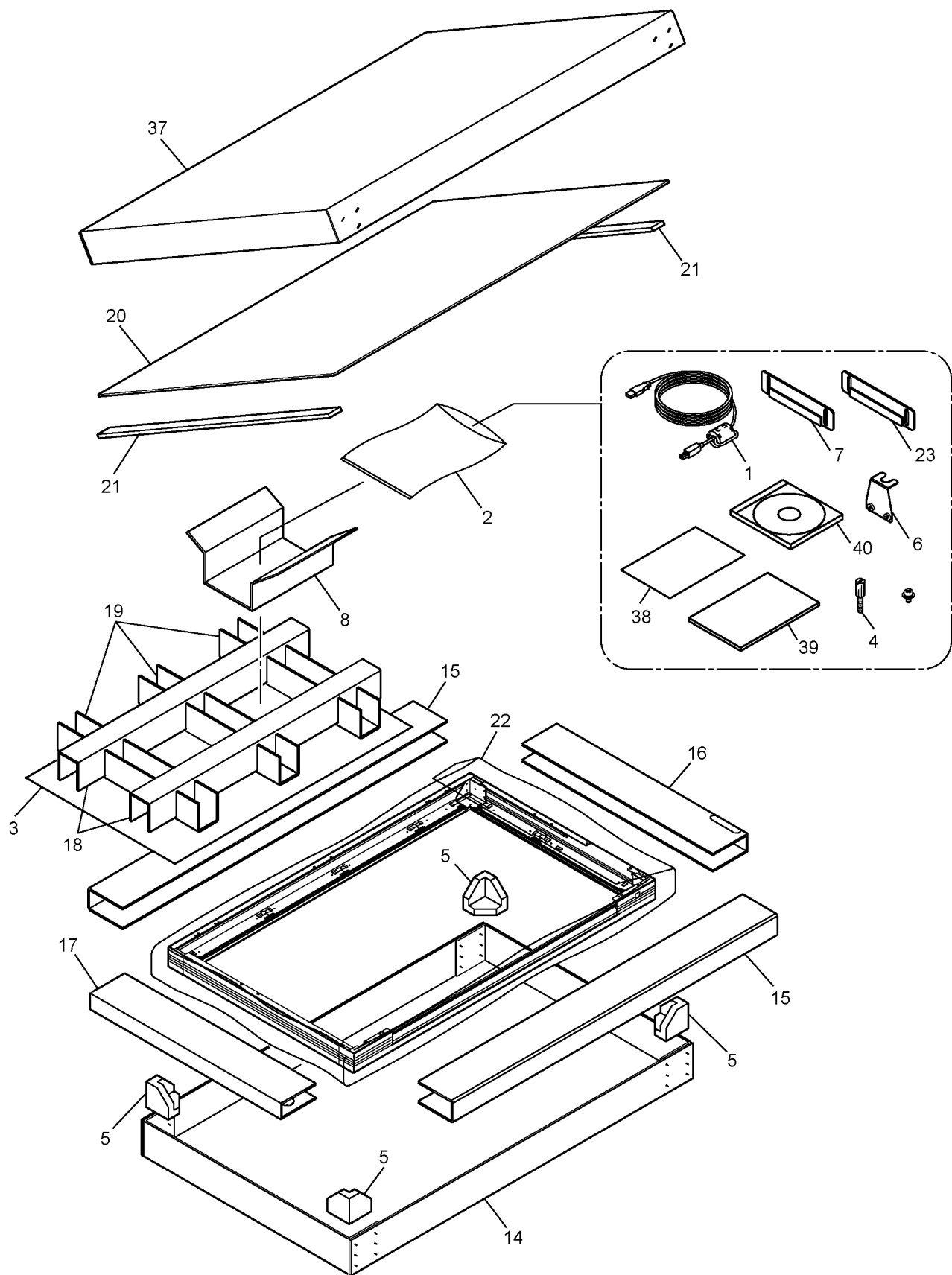


## 11.2. TY-TP50P8-S

### Main unit



# Packing





# 12 Replacement Parts List

## 12.1. Replacement Parts List Notes

### RTL (Retention Time Limited)

**Note:** The marking (RTL) indicates that the Retention Time is Limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.

After the end of this period, the assembly will no longer be available.

### Parts name and Symbols

Parts name	Symbols
IC	U
Diode	D
Transistor	Q
Resistor	R
Capacitor	C
Connector	J
Phototransistor	XP, YP
IR LED	XL, YL

## 12.2. TY-TP42P8-S Mechanical Replacement parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	ECB-UE220M	USB CABLE(2M)	1	
2	G032-E40409	POLY BAG	5	
3	G032E40412	AIR CUSHION	1	
4	G032R40836	SCREW	8	
5	G263R31001	CORNER PAD	4	
6	G441040003	BOARD A	4	
7	G441040004	USB CABLE ASSY	1	
8	G441R0818	BOARD #1	4	
9	G441R21001	CARTON BOX(BOTTOM)	1	
10	G441R21003	PAD(BIG)	2	
11	G441R21004	PAD(SMALL) LEFT	1	
12	G441R21005	PAD(SMALL) RIGHT	1	
13	G441R21006	CENTER PAD (BIG)	2	
14	G441R21007	CENTER PAD (SMALL)	2	
15	G441R21008	CENTER PAD	1	
16	G441R31002	TOP PAD #1	1	
17	G441R31003	TOP PAD #2	2	
18	G441R4081301	USB BOARD	1	
19	G441R4081401	USB BOARD #2	1	
20	G441R40821	RUBBER #3	4	
21	G541R40801	PROTECT COVER	1	
22	SPC-04549	PEN-RECEIVE:XLED-1	1	
23	SPC-04550	FFC CABLE1	1	
24	SPC-04551	FFC CABLE2	1	
25	SPC-04552	FFC CABLE3	1	
26	SPC-04553	FFC CABLE4	1	
27	SPC-04554	FFC CABLE5	1	
28	SPC-04555	FFC CABLE6	1	
29	SPC-04556	FFC CABLE7	1	
30	SPC-04557	FFC CABLE8	1	
31	SPC-04558	FFC CABLE9	1	
32	SPC-04559	FFC CABLE10	1	
33	TPCB87101	CARTON BOX (TOP)	1	
34	TQZW441	INSTRUCTION SEET	1	
35	TQZW463	INSTRUCTION BOOK(JAPAN)	1	△
	TQZW464	INSTRUCTION BOOK(ENGLISH)	1	△
	TQZW465	INSTRUCTION BOOK(GERMAN)	1	△
	TQZW466	INSTRUCTION BOOK(ITALIAN)	1	△
	TQZW467	INSTRUCTION BOOK(FRENCH)	1	△
	TQZW468	INSTRUCTION BOOK(SPANISH)	1	△
	TQZW469	INSTRUCTION BOOK(CHINA)	1	△
	TQZW470	INSTRUCTION BOOK(RUSSIAN)	1	△
	TQZW471	INSTRUCTION BOOK(UKRAINE)	1	△
36	TS-731	CD-ROM	1	
37	TT-0613-08	WASHER	2	
38	TTEA0351	ESCUTCHEON ASSY	1	
38-1	TBMA100	PANASONIC BADGE	1	
	XYN3+F6FN	SCREW M3*6W	2	

## 12.3. TY-TP42P8-S Electrical Replacement parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
FUSE1,2	F0603E1R00-F	1.00A	2	△
C1 06	EEFCD0J470R	47UF	1	
C1 07	EEFCD0J470R	47UF	1	
C1 08	EEFCD0J470R	47UF	1	
C1 10	EEFCD0J470R	47UF	1	
C1 09	EEFCD0J470R	47UF	1	
C1	G219F11H104Z	50WV 0.1U	1	
C1 12	G219F11H104Z	50WV 0.1U	1	
C1 11	G219F11H104Z	50WV 0.1U	1	
C1 02	G219F11H104Z	50WV 0.1U	1	
C1 03	G219F11H104Z	50WV 0.1U	1	
C1 04	G219F11H104Z	50WV 0.1U	1	
C1 05	G219F11H104Z	50WV 0.1U	1	
C2 06	EEFCD0J470R	47UF	1	
C2 07	EEFCD0J470R	47UF	1	
C2 08	EEFCD0J470R	47UF	1	
C2 10	EEFCD0J470R	47UF	1	
C2 12	EEFCD0J470R	47UF	1	
C2 09	EEFCD0J470R	47UF	1	
C2	G219F11H104Z	50WV 0.1U	1	
C2 05	G219F11H104Z	50WV 0.1U	1	
C2 02	G219F11H104Z	50WV 0.1U	1	
C2 04	G219F11H104Z	50WV 0.1U	1	
C2 03	G219F11H104Z	50WV 0.1U	1	
C2 11	G21BB11E334K	16WV 0.33U	1	
C3	G219F11H104Z	50WV 0.1U	1	
C3 10	G219F11H104Z	50WV 0.1U	1	
C3 09	G219F11H104Z	50WV 0.1U	1	
C3 04	G219F11H104Z	50WV 0.1U	1	
C3 05	G219F11H104Z	50WV 0.1U	1	
C3 06	G219F11H104Z	50WV 0.1U	1	
C3 08	G219F11H104Z	50WV 0.1U	1	
C3 07	G219F11H104Z	50WV 0.1U	1	
C3 03	G219F11H104Z	50WV 0.1U	1	
C3 02	G219F11H104Z	50WV 0.1U	1	
C3 11	G21BB11E334K	16WV 0.33U	1	
C4	G219F11H104Z	50WV 0.1U	1	
C4 05	G219F11H104Z	50WV 0.1U	1	
C4 07	G219F11H104Z	50WV 0.1U	1	
C4 09	G219F11H104Z	50WV 0.1U	1	
C4 11	G219F11H104Z	50WV 0.1U	1	
C4 10	G219F11H104Z	50WV 0.1U	1	
C4 08	G219F11H104Z	50WV 0.1U	1	
C4 06	G219F11H104Z	50WV 0.1U	1	
C4 04	G219F11H104Z	50WV 0.1U	1	
C4 02	G219F11H104Z	50WV 0.1U	1	
C5	G219F11H104Z	50WV 0.1U	1	
C5 08	G219F11H104Z	50WV 0.1U	1	
C5 10	G219F11H104Z	50WV 0.1U	1	
C5 11	G219F11H104Z	50WV 0.1U	1	
C5 09	G219F11H104Z	50WV 0.1U	1	
C5 07	G219F11H104Z	50WV 0.1U	1	
C5 03	G219F11H104Z	50WV 0.1U	1	
C5 04	G219F11H104Z	50WV 0.1U	1	
C5 06	G219F11H104Z	50WV 0.1U	1	
C5 05	G219F11H104Z	50WV 0.1U	1	
C5 02	G219F11H104Z	50WV 0.1U	1	
C6 11	EEFCD0J470R	47UF	1	
C6	G216B11H332K	50WV 3300P	1	
C6 04	G216B11H332K	50WV 3300P	1	
C6 05	G216B11H332K	50WV 3300P	1	
C6 02	G216B11H332K	50WV 3300P	1	
C6 03	G216B11H332K	50WV 3300P	1	
C6 06	G219F11H104Z	50WV 0.1U	1	
C6 08	G219F11H104Z	50WV 0.1U	1	
C6 09	G219F11H104Z	50WV 0.1U	1	
C6 10	G219F11H104Z	50WV 0.1U	1	
C7	G219F11H104Z	50WV 0.1U	1	
C7 06	G219F11H104Z	50WV 0.1U	1	
C7 08	G219F11H104Z	50WV 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C7 10	G219F11H104Z	50WV 0.1U	1	
C7 11	G219F11H104Z	50WV 0.1U	1	
C7 09	G219F11H104Z	50WV 0.1U	1	
C7 07	G219F11H104Z	50WV 0.1U	1	
C7 05	G219F11H104Z	50WV 0.1U	1	
C7 02	G219F11H104Z	50WV 0.1U	1	
C7 04	G219F11H104Z	50WV 0.1U	1	
C7 03	G219F11H104Z	50WV 0.1U	1	
C8 11	G216B11H332K	50WV 3300P	1	
C8	G219F11H104Z	50WV 0.1U	1	
C8 09	G219F11H104Z	50WV 0.1U	1	
C8 10	G219F11H104Z	50WV 0.1U	1	
C8 08	G219F11H104Z	50WV 0.1U	1	
C8 03	G219F11H104Z	50WV 0.1U	1	
C8 05	G219F11H104Z	50WV 0.1U	1	
C8 06	G219F11H104Z	50WV 0.1U	1	
C8 07	G219F11H104Z	50WV 0.1U	1	
C8 04	G219F11H104Z	50WV 0.1U	1	
C8 02	G219F11H104Z	50WV 0.1U	1	
C9 06	EEFCD0J470R	47UF	1	
C9 11	G2162C1H471J	50WV 470P	1	
C9	G216B11H332K	50WV 3300P	1	
C9 04	G216B11H332K	50WV 3300P	1	
C9 05	G216B11H332K	50WV 3300P	1	
C9 02	G216B11H332K	50WV 3300P	1	
C9 03	G216B11H332K	50WV 3300P	1	
C9 07	G219F11H104Z	50WV 0.1U	1	
C9 09	G219F11H104Z	50WV 0.1U	1	
C9 10	G219F11H104Z	50WV 0.1U	1	
C9 08	G219F11H104Z	50WV 0.1U	1	
C10 06	EEFCD0J470R	47UF	1	
C10 07	EEFCD0J470R	47UF	1	
C10 09	EEFCD0J470R	47UF	1	
C10 08	EEFCD0J470R	47UF	1	
C10	G219F11H104Z	50WV 0.1U	1	
C10 02	G219F11H104Z	50WV 0.1U	1	
C10 03	G219F11H104Z	50WV 0.1U	1	
C10 04	G219F11H104Z	50WV 0.1U	1	
C10 05	G219F11H104Z	50WV 0.1U	1	
C10 10	G219F11H104Z	50WV 0.1U	1	
C11 06	EEFCD0J470R	47UF	1	
C11	G219F11H104Z	50WV 0.1U	1	
C11 02	G219F11H104Z	50WV 0.1U	1	
C11 03	G219F11H104Z	50WV 0.1U	1	
C11 04	G219F11H104Z	50WV 0.1U	1	
C12	G219F11H104Z	50WV 0.1U	1	
C12 02	G219F11H104Z	50WV 0.1U	1	
C12 03	G219F11H104Z	50WV 0.1U	1	
C12 04	G219F11H104Z	50WV 0.1U	1	
C12 05	G219F11H104Z	50WV 0.1U	1	
C13	G219F11H104Z	50WV 0.1U	1	
C13 02	G219F11H104Z	50WV 0.1U	1	
C13 03	G219F11H104Z	50WV 0.1U	1	
C13 04	G219F11H104Z	50WV 0.1U	1	
C13 05	G219F11H104Z	50WV 0.1U	1	
C14	G219F11H104Z	50WV 0.1U	1	
C14 02	G219F11H104Z	50WV 0.1U	1	
C14 03	G219F11H104Z	50WV 0.1U	1	
C14 04	G219F11H104Z	50WV 0.1U	1	
C14 05	G219F11H104Z	50WV 0.1U	1	
C15	G219F11H104Z	50WV 0.1U	1	
C15 02	G219F11H104Z	50WV 0.1U	1	
C15 03	G219F11H104Z	50WV 0.1U	1	
C15 04	G219F11H104Z	50WV 0.1U	1	
C15 05	G219F11H104Z	50WV 0.1U	1	
C16	G219F11H104Z	50WV 0.1U	1	
C16 02	G219F11H104Z	50WV 0.1U	1	
C16 03	G219F11H104Z	50WV 0.1U	1	
C16 04	G219F11H104Z	50WV 0.1U	1	
C16 05	G219F11H104Z	50WV 0.1U	1	
C16 06	G219F11H104Z	50WV 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C17 06	EEFCD1C2R2R	16VÅ@2.2U	1	
C17	G219F11H104Z	50WV 0.1U	1	
C17 02	G219F11H104Z	50WV 0.1U	1	
C17 03	G219F11H104Z	50WV 0.1U	1	
C17 04	G219F11H104Z	50WV 0.1U	1	
C18	G219F11H104Z	50WV 0.1U	1	
C18 02	G219F11H104Z	50WV 0.1U	1	
C18 03	G219F11H104Z	50WV 0.1U	1	
C18 04	G219F11H104Z	50WV 0.1U	1	
C18 05	G219F11H104Z	50WV 0.1U	1	
C19 02	EEFCD0J470R	47UF	1	
C19	G219F11H104Z	50WV 0.1U	1	
C19 03	G219F11H104Z	50WV 0.1U	1	
C19 04	G219F11H104Z	50WV 0.1U	1	
C20	G219F11H104Z	50WV 0.1U	1	
C20 02	G219F11H104Z	50WV 0.1U	1	
C20 03	G219F11H104Z	50WV 0.1U	1	
C20 04	G219F11H104Z	50WV 0.1U	1	
C20 05	G219F11H104Z	50WV 0.1U	1	
C21 05	G219B11H333K	50WV 0.033U	1	
C21	G219F11H104Z	50WV 0.1U	1	
C21 02	G219F11H104Z	50WV 0.1U	1	
C21 03	G219F11H104Z	50WV 0.1U	1	
C22	G219F11H104Z	50WV 0.1U	1	
C22 02	G219F11H104Z	50WV 0.1U	1	
C22 03	G219F11H104Z	50WV 0.1U	1	
C22 04	G219F11H104Z	50WV 0.1U	1	
C22 05	G219F11H104Z	50WV 0.1U	1	
C23	EEFCD0J470R	47UF	1	
C23 02	EEFCD0J470R	47UF	1	
C23 03	EEFCD0J470R	47UF	1	
C23 04	EEFCD0J470R	47UF	1	
C25	G219F11H104Z	50WV 0.1U	1	
C26,27	G216B11H103K	50WV 0.01U	2	
C28,29	G219F11H104Z	50WV 0.1U	2	
C30	EEFCD0J470R	47UF	1	
C31	G219F11H104Z	50WV 0.1U	1	
C32-35	G21BF11H224Z	50WV 0.22U	4	
C36	G219F11H104Z	50WV 0.1U	1	
D1-D3	1S2835-F	DIODE	3	
D4	NNCD5.6F-F	DIODE	1	
D5,D6	NNCD6.2MF-F	DIODE	2	
D7	NNCD5.6F-F	DIODE	1	
D8,D9	NNCD12F	DIODE	2	
FC1,C2	EXCML20A390U	BEAD CHOKE	2	
J1 02	DF14A-3P-F	3P CONNECTOR	1	
J1	UBB-4R-D14-F	USB CONNECTOR	1	
J4	52435-2672	FPC CONNECTOR 26P	1	
J9,10	52435-2672	FPC CONNECTOR 26P	2	
J10 02	52435-2672	FPC CONNECTOR 26P	1	
J11	52435-2672	FPC CONNECTOR 26P	1	
J11 02	52435-2672	FPC CONNECTOR 26P	1	
J11 03	52435-2672	FPC CONNECTOR 26P	1	
J13	52435-2672	FPC CONNECTOR 26P	1	
J13 02	52435-2672	FPC CONNECTOR 26P	1	
J14	52435-2672	FPC CONNECTOR 26P	1	
J14 02	52435-2672	FPC CONNECTOR 26P	1	
J14 03	52435-2672	FPC CONNECTOR 26P	1	
J15	DF14A-3P-F	3P CONNECTOR	1	
J20-27	52435-2672	FPC CONNECTOR 26P	8	
L1	DNP319	LED	1	
L1 02	DNP319	LED	1	
L1 03	DNP319	LED	1	
L1 04	DNP319	LED	1	
L2	DNP319	LED	1	
L2 04	DNP319	LED	1	
L2 05	DNP319	LED	1	
L2 03	DNP319	LED	1	
L3	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L3 03	DNP319	LED	1	
L3 04	DNP319	LED	1	
L3 05	DNP319	LED	1	
L4	DNP319	LED	1	
L4 04	DNP319	LED	1	
L4 05	DNP319	LED	1	
L4 02	DNP319	LED	1	
L5	DNP319	LED	1	
L5 03	DNP319	LED	1	
L5 05	DNP319	LED	1	
L5 04	DNP319	LED	1	
L6	DNP319	LED	1	
L6 05	DNP319	LED	1	
L6 02	DNP319	LED	1	
L6 04	DNP319	LED	1	
L7	DNP319	LED	1	
L7 04	DNP319	LED	1	
L7 05	DNP319	LED	1	
L7 02	DNP319	LED	1	
L8	DNP319	LED	1	
L8 03	DNP319	LED	1	
L8 04	DNP319	LED	1	
L8 05	DNP319	LED	1	
L9	DNP319	LED	1	
L9 05	DNP319	LED	1	
L9 04	DNP319	LED	1	
L9 02	DNP319	LED	1	
L10	DNP319	LED	1	
L10 02	DNP319	LED	1	
L10 03	DNP319	LED	1	
L10 04	DNP319	LED	1	
L11	DNP319	LED	1	
L11 02	DNP319	LED	1	
L11 03	DNP319	LED	1	
L11 04	DNP319	LED	1	
L12	DNP319	LED	1	
L12 02	DNP319	LED	1	
L12 03	DNP319	LED	1	
L12 04	DNP319	LED	1	
L13	DNP319	LED	1	
L13 02	DNP319	LED	1	
L13 03	DNP319	LED	1	
L13 04	DNP319	LED	1	
L14	DNP319	LED	1	
L14 02	DNP319	LED	1	
L14 03	DNP319	LED	1	
L14 04	DNP319	LED	1	
L15	DNP319	LED	1	
L15 02	DNP319	LED	1	
L15 03	DNP319	LED	1	
L15 04	DNP319	LED	1	
L16	DNP319	LED	1	
L16 02	DNP319	LED	1	
L16 03	DNP319	LED	1	
L16 04	DNP319	LED	1	
L17	DNP319	LED	1	
L17 02	DNP319	LED	1	
L17 03	DNP319	LED	1	
L17 04	DNP319	LED	1	
L18	DNP319	LED	1	
L18 02	DNP319	LED	1	
L18 03	DNP319	LED	1	
L18 04	DNP319	LED	1	
L19	DNP319	LED	1	
L19 02	DNP319	LED	1	
L19 03	DNP319	LED	1	
L19 04	DNP319	LED	1	
L20	DNP319	LED	1	
L20 02	DNP319	LED	1	
L20 03	DNP319	LED	1	
L20 04	DNP319	LED	1	
L21	DNP319	LED	1	
L21 02	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L21 03	DNP319	LED	1	
L21 04	DNP319	LED	1	
L22	DNP319	LED	1	
L22 02	DNP319	LED	1	
L22 03	DNP319	LED	1	
L22 04	DNP319	LED	1	
L23	DNP319	LED	1	
L23 02	DNP319	LED	1	
L23 03	DNP319	LED	1	
L23 04	DNP319	LED	1	
L24	DNP319	LED	1	
L24 02	DNP319	LED	1	
L24 03	DNP319	LED	1	
L24 04	DNP319	LED	1	
L25	DNP319	LED	1	
L25 02	DNP319	LED	1	
L25 03	DNP319	LED	1	
L25 04	DNP319	LED	1	
L26	DNP319	LED	1	
L26 02	DNP319	LED	1	
L26 03	DNP319	LED	1	
L26 04	DNP319	LED	1	
L27	DNP319	LED	1	
L27 02	DNP319	LED	1	
L27 03	DNP319	LED	1	
L27 04	DNP319	LED	1	
L28	DNP319	LED	1	
L28 02	DNP319	LED	1	
L28 03	DNP319	LED	1	
L28 04	DNP319	LED	1	
L29	DNP319	LED	1	
L29 02	DNP319	LED	1	
L29 03	DNP319	LED	1	
L29 04	DNP319	LED	1	
L30	DNP319	LED	1	
L30 02	DNP319	LED	1	
L30 03	DNP319	LED	1	
L30 04	DNP319	LED	1	
L31	DNP319	LED	1	
L31 02	DNP319	LED	1	
L31 03	DNP319	LED	1	
L31 04	DNP319	LED	1	
L32	DNP319	LED	1	
L32 02	DNP319	LED	1	
L32 03	DNP319	LED	1	
L32 04	DNP319	LED	1	
L33	DNP319	LED	1	
L33 02	DNP319	LED	1	
L33 03	DNP319	LED	1	
L33 04	DNP319	LED	1	
L34	DNP319	LED	1	
L34 02	DNP319	LED	1	
L34 03	DNP319	LED	1	
L34 04	DNP319	LED	1	
L35	DNP319	LED	1	
L35 02	DNP319	LED	1	
L35 03	DNP319	LED	1	
L35 04	DNP319	LED	1	
L36	DNP319	LED	1	
L36 02	DNP319	LED	1	
L36 03	DNP319	LED	1	
L36 04	DNP319	LED	1	
L37	DNP319	LED	1	
L37 02	DNP319	LED	1	
L37 03	DNP319	LED	1	
L37 04	DNP319	LED	1	
L38	DNP319	LED	1	
L38 02	DNP319	LED	1	
L38 03	DNP319	LED	1	
L38 04	DNP319	LED	1	
L39	DNP319	LED	1	
L39 02	DNP319	LED	1	
L39 03	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L39 04	DNP319	LED	1	
L40	DNP319	LED	1	
L40 02	DNP319	LED	1	
L40 03	DNP319	LED	1	
L40 04	DNP319	LED	1	
L41	DNP319	LED	1	
L41 02	DNP319	LED	1	
L41 03	DNP319	LED	1	
L41 04	DNP319	LED	1	
L42	DNP319	LED	1	
L42 02	DNP319	LED	1	
L42 03	DNP319	LED	1	
L42 04	DNP319	LED	1	
L43	DNP319	LED	1	
L43 02	DNP319	LED	1	
L43 03	DNP319	LED	1	
L43 04	DNP319	LED	1	
L44	DNP319	LED	1	
L44 02	DNP319	LED	1	
L44 03	DNP319	LED	1	
L44 04	DNP319	LED	1	
L45	DNP319	LED	1	
L45 02	DNP319	LED	1	
L45 03	DNP319	LED	1	
L45 04	DNP319	LED	1	
L46	DNP319	LED	1	
L46 02	DNP319	LED	1	
L46 03	DNP319	LED	1	
L46 04	DNP319	LED	1	
L47	DNP319	LED	1	
L47 02	DNP319	LED	1	
L47 03	DNP319	LED	1	
L47 04	DNP319	LED	1	
L48	DNP319	LED	1	
L48 02	DNP319	LED	1	
L48 03	DNP319	LED	1	
L48 04	DNP319	LED	1	
L49	DNP319	LED	1	
L49 02	DNP319	LED	1	
L49 03	DNP319	LED	1	
L49 04	DNP319	LED	1	
L50	DNP319	LED	1	
L50 02	DNP319	LED	1	
L50 03	DNP319	LED	1	
L50 04	DNP319	LED	1	
L51	DNP319	LED	1	
L51 02	DNP319	LED	1	
L51 03	DNP319	LED	1	
L51 04	DNP319	LED	1	
L52	DNP319	LED	1	
L52 02	DNP319	LED	1	
L52 03	DNP319	LED	1	
L52 04	DNP319	LED	1	
L53	DNP319	LED	1	
L53 02	DNP319	LED	1	
L53 03	DNP319	LED	1	
L54	DNP319	LED	1	
L54 02	DNP319	LED	1	
L54 03	DNP319	LED	1	
L55	DNP319	LED	1	
L55 02	DNP319	LED	1	
L55 03	DNP319	LED	1	
L56	DNP319	LED	1	
L56 02	DNP319	LED	1	
L56 03	DNP319	LED	1	
L57	DNP319	LED	1	
L57 02	DNP319	LED	1	
L57 03	DNP319	LED	1	
L58	DNP319	LED	1	
L58 02	DNP319	LED	1	
L58 03	DNP319	LED	1	
L59	DNP319	LED	1	
L59 02	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L59 03	DNP319	LED	1	
L60	DNP319	LED	1	
L60 02	DNP319	LED	1	
L60 03	DNP319	LED	1	
L61	DNP319	LED	1	
L61 02	DNP319	LED	1	
L61 03	DNP319	LED	1	
L62	DNP319	LED	1	
L62 02	DNP319	LED	1	
L62 03	DNP319	LED	1	
L63	DNP319	LED	1	
L63 02	DNP319	LED	1	
L63 03	DNP319	LED	1	
L64	DNP319	LED	1	
L64 02	DNP319	LED	1	
L64 03	DNP319	LED	1	
L65	DNP319	LED	1	
L65 02	DNP319	LED	1	
L65 03	DNP319	LED	1	
L66	DNP319	LED	1	
L66 02	DNP319	LED	1	
L66 03	DNP319	LED	1	
L67	DNP319	LED	1	
L67 02	DNP319	LED	1	
L67 03	DNP319	LED	1	
L68	DNP319	LED	1	
L68 02	DNP319	LED	1	
L68 03	DNP319	LED	1	
L69	DNP319	LED	1	
L69 02	DNP319	LED	1	
L69 03	DNP319	LED	1	
L70	DNP319	LED	1	
L70 02	DNP319	LED	1	
L70 03	DNP319	LED	1	
L71	DNP319	LED	1	
L71 02	DNP319	LED	1	
L71 03	DNP319	LED	1	
L72	DNP319	LED	1	
L72 02	DNP319	LED	1	
L72 03	DNP319	LED	1	
L73	DNP319	LED	1	
L73 02	DNP319	LED	1	
L73 03	DNP319	LED	1	
L74	DNP319	LED	1	
L74 02	DNP319	LED	1	
L74 03	DNP319	LED	1	
L75	DNP319	LED	1	
L75 02	DNP319	LED	1	
L75 03	DNP319	LED	1	
L76	DNP319	LED	1	
L76 02	DNP319	LED	1	
L77	DNP319	LED	1	
L77 02	DNP319	LED	1	
L78	DNP319	LED	1	
L78 02	DNP319	LED	1	
L78 03	DNP319	LED	1	
ALM LED	CL170HR-CD-T	LED (RED)	1	
P1	PT100MF0MP	PHOTO TRANSISTOR	1	
P1 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P1 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P1 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P1 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P1 06	ROM-238LM	IBQ(RAYTRON)	1	
P2	PT100MF0MP	PHOTO TRANSISTOR	1	
P2 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P2 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P2 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P3	PT100MF0MP	PHOTO TRANSISTOR	1	
P3 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P3 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P3 02	PT100MF0MP	PHOTO TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
P4	PT100MF0MP	PHOTO TRANSISTOR	1	
P4 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P4 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P4 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P5	PT100MF0MP	PHOTO TRANSISTOR	1	
P5 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P5 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P5 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P6	PT100MF0MP	PHOTO TRANSISTOR	1	
P6 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P6 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P6 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P7	PT100MF0MP	PHOTO TRANSISTOR	1	
P7 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P7 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P7 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P8	PT100MF0MP	PHOTO TRANSISTOR	1	
P8 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P8 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P8 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P9	PT100MF0MP	PHOTO TRANSISTOR	1	
P9 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P9 05	PT100MF0MP	PHOTO TRANSISTOR	1	
P9 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P10	PT100MF0MP	PHOTO TRANSISTOR	1	
P10 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P10 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P10 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P11	PT100MF0MP	PHOTO TRANSISTOR	1	
P11 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P11 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P11 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P12	PT100MF0MP	PHOTO TRANSISTOR	1	
P12 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P12 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P12 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P13	PT100MF0MP	PHOTO TRANSISTOR	1	
P13 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P13 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P13 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P14	PT100MF0MP	PHOTO TRANSISTOR	1	
P14 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P14 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P14 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P15	PT100MF0MP	PHOTO TRANSISTOR	1	
P15 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P15 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P15 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P16	PT100MF0MP	PHOTO TRANSISTOR	1	
P16 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P16 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P16 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P17	PT100MF0MP	PHOTO TRANSISTOR	1	
P17 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P17 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P17 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P18	PT100MF0MP	PHOTO TRANSISTOR	1	
P18 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P18 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P18 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P19	PT100MF0MP	PHOTO TRANSISTOR	1	
P19 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P19 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P19 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P20	PT100MF0MP	PHOTO TRANSISTOR	1	
P20 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P20 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P20 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P21	PT100MF0MP	PHOTO TRANSISTOR	1	
P21 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P21 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P21 04	PT100MF0MP	PHOTO TRANSISTOR	1	
P22	PT100MF0MP	PHOTO TRANSISTOR	1	



Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
P60 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P61	PT100MF0MP	PHOTO TRANSISTOR	1	
P61 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P61 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P62	PT100MF0MP	PHOTO TRANSISTOR	1	
P62 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P62 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P63	PT100MF0MP	PHOTO TRANSISTOR	1	
P63 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P63 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P64	PT100MF0MP	PHOTO TRANSISTOR	1	
P64 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P64 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P65	PT100MF0MP	PHOTO TRANSISTOR	1	
P65 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P65 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P66	PT100MF0MP	PHOTO TRANSISTOR	1	
P66 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P66 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P67	PT100MF0MP	PHOTO TRANSISTOR	1	
P67 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P67 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P68	PT100MF0MP	PHOTO TRANSISTOR	1	
P68 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P68 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P69	PT100MF0MP	PHOTO TRANSISTOR	1	
P69 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P69 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P70	PT100MF0MP	PHOTO TRANSISTOR	1	
P70 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P70 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P71	PT100MF0MP	PHOTO TRANSISTOR	1	
P71 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P71 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P72	PT100MF0MP	PHOTO TRANSISTOR	1	
P72 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P72 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P73	PT100MF0MP	PHOTO TRANSISTOR	1	
P73 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P73 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P74	PT100MF0MP	PHOTO TRANSISTOR	1	
P74 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P74 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P75	PT100MF0MP	PHOTO TRANSISTOR	1	
P75 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P75 03	PT100MF0MP	PHOTO TRANSISTOR	1	
P76	PT100MF0MP	PHOTO TRANSISTOR	1	
P76 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P77	PT100MF0MP	PHOTO TRANSISTOR	1	
P77 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P78	PT100MF0MP	PHOTO TRANSISTOR	1	
P78 02	PT100MF0MP	PHOTO TRANSISTOR	1	
P78 03	PT100MF0MP	PHOTO TRANSISTOR	1	
Q1	FB1L2Q-F	TRANSISTOR	1	
Q1 02	FB1L2Q-F	TRANSISTOR	1	
Q1 03	FB1L2Q-F	TRANSISTOR	1	
Q1 04	FB1L2Q-F	TRANSISTOR	1	
Q1 05	FB1L2Q-F	TRANSISTOR	1	
Q1 06	FP1L2Q-F	TRANSISTOR	1	
Q1 07	FP1L2Q-F	TRANSISTOR	1	
Q1 08	FP1L2Q-F	TRANSISTOR	1	
Q1 09	FP1L2Q-F	TRANSISTOR	1	
Q1 10	FP1L2Q-F	TRANSISTOR	1	
Q2 06	FB1L2Q-F	TRANSISTOR	1	
Q2	FP1L2Q-F	TRANSISTOR	1	
Q2 02	FP1L2Q-F	TRANSISTOR	1	
Q2 04	FP1L2Q-F	TRANSISTOR	1	
Q2 05	FP1L2Q-F	TRANSISTOR	1	
Q3	FP1L2Q-F	TRANSISTOR	1	
Q3 02	FP1L2Q-F	TRANSISTOR	1	
Q3 05	FP1L2Q-F	TRANSISTOR	1	
Q3 04	FP1L2Q-F	TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q4	FP1L2Q-F	TRANSISTOR	1	
Q4 02	FP1L2Q-F	TRANSISTOR	1	
Q4 04	FP1L2Q-F	TRANSISTOR	1	
Q4 03	FP1L2Q-F	TRANSISTOR	1	
Q5	FP1L2Q-F	TRANSISTOR	1	
Q5 02	FP1L2Q-F	TRANSISTOR	1	
Q5 04	FP1L2Q-F	TRANSISTOR	1	
Q5 05	FP1L2Q-F	TRANSISTOR	1	
Q6	FP1L2Q-F	TRANSISTOR	1	
Q6 02	FP1L2Q-F	TRANSISTOR	1	
Q6 03	FP1L2Q-F	TRANSISTOR	1	
Q6 05	FP1L2Q-F	TRANSISTOR	1	
Q7	FP1L2Q-F	TRANSISTOR	1	
Q7 05	FP1L2Q-F	TRANSISTOR	1	
Q7 04	FP1L2Q-F	TRANSISTOR	1	
Q7 03	FP1L2Q-F	TRANSISTOR	1	
Q7 02	FP1L2Q-F	TRANSISTOR	1	
Q8	FB1L2Q-F	TRANSISTOR	1	
Q8 02	FP1L2Q-F	TRANSISTOR	1	
Q8 03	FP1L2Q-F	TRANSISTOR	1	
Q8 05	FP1L2Q-F	TRANSISTOR	1	
Q8 04	FP1L2Q-F	TRANSISTOR	1	
Q9	FB1L2Q-F	TRANSISTOR	1	
Q9 02	FP1L2Q-F	TRANSISTOR	1	
Q9 03	FP1L2Q-F	TRANSISTOR	1	
Q9 04	FP1L2Q-F	TRANSISTOR	1	
Q9 05	FP1L2Q-F	TRANSISTOR	1	
Q10	FB1L2Q-F	TRANSISTOR	1	
Q10 02	FP1L2Q-F	TRANSISTOR	1	
Q10 03	FP1L2Q-F	TRANSISTOR	1	
Q10 04	FP1L2Q-F	TRANSISTOR	1	
Q10 05	FP1L2Q-F	TRANSISTOR	1	
Q11	FB1L2Q-F	TRANSISTOR	1	
Q11 02	FB1L2Q-F	TRANSISTOR	1	
Q11 03	FB1L2Q-F	TRANSISTOR	1	
Q11 04	FB1L2Q-F	TRANSISTOR	1	
Q12	FB1L2Q-F	TRANSISTOR	1	
Q12 02	FB1L2Q-F	TRANSISTOR	1	
Q12 03	FB1L2Q-F	TRANSISTOR	1	
Q12 04	FB1L2Q-F	TRANSISTOR	1	
Q13	FB1L2Q-F	TRANSISTOR	1	
Q13 02	FB1L2Q-F	TRANSISTOR	1	
Q13 03	FB1L2Q-F	TRANSISTOR	1	
Q13 04	FB1L2Q-F	TRANSISTOR	1	
Q14	FB1L2Q-F	TRANSISTOR	1	
Q14 02	FB1L2Q-F	TRANSISTOR	1	
Q14 03	FB1L2Q-F	TRANSISTOR	1	
Q14 04	FB1L2Q-F	TRANSISTOR	1	
Q15	FB1L2Q-F	TRANSISTOR	1	
Q15 02	FB1L2Q-F	TRANSISTOR	1	
Q15 03	FB1L2Q-F	TRANSISTOR	1	
Q15 04	FB1L2Q-F	TRANSISTOR	1	
Q16	FB1L2Q-F	TRANSISTOR	1	
Q16 02	FB1L2Q-F	TRANSISTOR	1	
Q16 03	FB1L2Q-F	TRANSISTOR	1	
Q17	FB1L2Q-F	TRANSISTOR	1	
Q17 02	FB1L2Q-F	TRANSISTOR	1	
Q17 03	FB1L2Q-F	TRANSISTOR	1	
Q18	FB1L2Q-F	TRANSISTOR	1	
Q18 02	FB1L2Q-F	TRANSISTOR	1	
Q18 03	FB1L2Q-F	TRANSISTOR	1	
Q18 04	FB1L2Q-F	TRANSISTOR	1	
R1 03	CRT1/10-103F	1/10W 10K	1	
R1 04	CRT1/10-470F	1/10W 47	1	
R1	CRT1/10-R00J	1/10W 0	1	
R1 02	CRT1/10-R00J	1/10W 0	1	
R2 03	CRT1/10-102F	1/10W 1K	1	
R2	CRT1/10-R00J	1/10W 0	1	
R2 02	CRT1/10-R00J	1/10W 0	1	
R3 03	CRT1/10-332F	1/10W 3.3K	1	
R3	CRT1/10-R00J	1/10W 0	1	
R3 02	CRT1/10-R00J	1/10W 0	1	



Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R4	CRT1/10-152F	1/10W 1.5K	1	
R6,R7	CRT1/10-102F	1/10W 1K	2	
R8,R9	CRT1/10-R00J	1/10W 0	2	
R9 03	CRT1/10-R00J	1/10W 0	1	
R10	CRT1/10-R00J	1/10W 0	1	
R10 02	CRT1/10-R00J	1/10W 0	1	
R11	CRT1/10-R00J	1/10W 0	1	
R13	CRT1/10-101F	1/10W 100	1	
R14-17	CRT1/10-103F	1/10W 10K	4	
R17 02	CRT1/10-103F	1/10W 10K	1	
R17 11	CRT1/10-103F	1/10W 10K	1	
R17 03	CRT1/10-103F	1/10W 10K	1	
R17 04	CRT1/10-103F	1/10W 10K	1	
R17 05	CRT1/10-103F	1/10W 10K	1	
R17 06	CRT1/8-100F	1/8W 10	1	
R17 07	CRT1/8-100F	1/8W 10	1	
R17 08	CRT1/8-100F	1/8W 10	1	
R17 09	CRT1/8-100F	1/8W 10	1	
R17 10	CRT1/8-100F	1/8W 10	1	
R18	CRT1/10-103F	1/10W 10K	1	
R18 02	CRT1/10-103F	1/10W 10K	1	
R18 03	CRT1/10-103F	1/10W 10K	1	
R18 11	CRT1/10-103F	1/10W 10K	1	
R18 04	CRT1/10-103F	1/10W 10K	1	
R18 05	CRT1/10-103F	1/10W 10K	1	
R18 06	CRT1/8-100F	1/8W 10	1	
R18 07	CRT1/8-100F	1/8W 10	1	
R18 08	CRT1/8-100F	1/8W 10	1	
R18 09	CRT1/8-100F	1/8W 10	1	
R18 10	CRT1/8-100F	1/8W 10	1	
R19	CRT1/10-103F	1/10W 10K	1	
R19 02	CRT1/10-103F	1/10W 10K	1	
R19 03	CRT1/10-103F	1/10W 10K	1	
R19 04	CRT1/10-103F	1/10W 10K	1	
R19 11	CRT1/10-103F	1/10W 10K	1	
R19 05	CRT1/10-103F	1/10W 10K	1	
R19 06	CRT1/8-120F	1/8W 12	1	
R19 07	CRT1/8-120F	1/8W 12	1	
R19 08	CRT1/8-120F	1/8W 12	1	
R19 09	CRT1/8-120F	1/8W 12	1	
R19 10	CRT1/8-120F	1/8W 12	1	
R20	CRT1/10-103F	1/10W 10K	1	
R20 02	CRT1/10-103F	1/10W 10K	1	
R20 11	CRT1/10-103F	1/10W 10K	1	
R20 03	CRT1/10-103F	1/10W 10K	1	
R20 04	CRT1/10-103F	1/10W 10K	1	
R20 05	CRT1/10-103F	1/10W 10K	1	
R20 06	CRT1/8-120F	1/8W 12	1	
R20 07	CRT1/8-120F	1/8W 12	1	
R20 08	CRT1/8-120F	1/8W 12	1	
R20 09	CRT1/8-120F	1/8W 12	1	
R20 10	CRT1/8-120F	1/8W 12	1	
R21	CRT1/10-103F	1/10W 10K	1	
R21 02	CRT1/10-103F	1/10W 10K	1	
R21 03	CRT1/10-103F	1/10W 10K	1	
R21 11	CRT1/10-103F	1/10W 10K	1	
R21 04	CRT1/10-103F	1/10W 10K	1	
R21 05	CRT1/10-103F	1/10W 10K	1	
R21 06	CRT1/8-120F	1/8W 12	1	
R21 07	CRT1/8-120F	1/8W 12	1	
R21 08	CRT1/8-120F	1/8W 12	1	
R21 09	CRT1/8-120F	1/8W 12	1	
R21 10	CRT1/8-120F	1/8W 12	1	
R22	CRT1/10-103F	1/10W 10K	1	
R22 02	CRT1/10-103F	1/10W 10K	1	
R22 03	CRT1/10-103F	1/10W 10K	1	
R22 04	CRT1/10-103F	1/10W 10K	1	
R22 11	CRT1/10-103F	1/10W 10K	1	
R22 05	CRT1/10-103F	1/10W 10K	1	
R22 06	CRT1/8-120F	1/8W 12	1	
R22 07	CRT1/8-120F	1/8W 12	1	
R22 08	CRT1/8-120F	1/8W 12	1	
R22 09	CRT1/8-120F	1/8W 12	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R22 10	CRT1/8-120F	1/8W 12	1	
R23	CRT1/10-103F	1/10W 10K	1	
R23 02	CRT1/10-103F	1/10W 10K	1	
R23 11	CRT1/10-103F	1/10W 10K	1	
R23 03	CRT1/10-103F	1/10W 10K	1	
R23 04	CRT1/10-103F	1/10W 10K	1	
R23 05	CRT1/10-103F	1/10W 10K	1	
R23 06	CRT1/10-302F	1/10W 3K	1	
R23 07	CRT1/10-302F	1/10W 3K	1	
R23 08	CRT1/10-302F	1/10W 3K	1	
R23 09	CRT1/10-302F	1/10W 3K	1	
R23 10	CRT1/10-302F	1/10W 3K	1	
R24	CRT1/10-103F	1/10W 10K	1	
R24 02	CRT1/10-103F	1/10W 10K	1	
R24 03	CRT1/10-103F	1/10W 10K	1	
R24 11	CRT1/10-103F	1/10W 10K	1	
R24 04	CRT1/10-103F	1/10W 10K	1	
R24 05	CRT1/10-103F	1/10W 10K	1	
R24 06	CRT1/10-152F	1/10W 1.5K	1	
R24 07	CRT1/10-152F	1/10W 1.5K	1	
R24 08	CRT1/10-152F	1/10W 1.5K	1	
R24 09	CRT1/10-152F	1/10W 1.5K	1	
R24 10	CRT1/10-152F	1/10W 1.5K	1	
R25	CRT1/10-103F	1/10W 10K	1	
R25 02	CRT1/10-103F	1/10W 10K	1	
R25 03	CRT1/10-103F	1/10W 10K	1	
R25 04	CRT1/10-103F	1/10W 10K	1	
R25 05	CRT1/10-103F	1/10W 10K	1	
R25 06	CRT1/10-103F	1/10W 10K	1	
R25 07	CRT1/10-103F	1/10W 10K	1	
R25 08	CRT1/10-103F	1/10W 10K	1	
R25 09	CRT1/10-103F	1/10W 10K	1	
R25 10	CRT1/10-103F	1/10W 10K	1	
R26	CRT1/10-103F	1/10W 10K	1	
R26 02	CRT1/10-103F	1/10W 10K	1	
R26 03	CRT1/10-103F	1/10W 10K	1	
R26 04	CRT1/10-103F	1/10W 10K	1	
R26 05	CRT1/10-103F	1/10W 10K	1	
R26 06	CRT1/10-103F	1/10W 10K	1	
R26 07	CRT1/10-103F	1/10W 10K	1	
R26 08	CRT1/10-103F	1/10W 10K	1	
R26 09	CRT1/10-103F	1/10W 10K	1	
R26 10	CRT1/10-103F	1/10W 10K	1	
R27	CRT1/10-103F	1/10W 10K	1	
R27 02	CRT1/10-103F	1/10W 10K	1	
R27 03	CRT1/10-103F	1/10W 10K	1	
R27 04	CRT1/10-103F	1/10W 10K	1	
R27 05	CRT1/10-103F	1/10W 10K	1	
R27 06	CRT1/10-103F	1/10W 10K	1	
R27 07	CRT1/10-103F	1/10W 10K	1	
R27 08	CRT1/10-103F	1/10W 10K	1	
R27 09	CRT1/10-103F	1/10W 10K	1	
R27 10	CRT1/10-103F	1/10W 10K	1	
R28 06	CRT1/10-103F	1/10W 10K	1	
R28 07	CRT1/10-103F	1/10W 10K	1	
R28 09	CRT1/10-103F	1/10W 10K	1	
R28 11	CRT1/10-103F	1/10W 10K	1	
R28 10	CRT1/10-103F	1/10W 10K	1	
R28 08	CRT1/10-103F	1/10W 10K	1	
R28	CRT1/10-104F	1/10W 100K	1	
R28 02	CRT1/10-104F	1/10W 100K	1	
R28 03	CRT1/10-104F	1/10W 100K	1	
R28 04	CRT1/10-104F	1/10W 100K	1	
R28 05	CRT1/10-104F	1/10W 100K	1	
R29	CRT1/10-103F	1/10W 10K	1	
R29 02	CRT1/10-103F	1/10W 10K	1	
R29 03	CRT1/10-103F	1/10W 10K	1	
R29 04	CRT1/10-103F	1/10W 10K	1	
R29 05	CRT1/10-103F	1/10W 10K	1	
R29 06	CRT1/10-103F	1/10W 10K	1	
R29 07	CRT1/10-103F	1/10W 10K	1	
R29 08	CRT1/10-103F	1/10W 10K	1	
R29 09	CRT1/10-103F	1/10W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R29 10	CRT1/10-103F	1/10W 10K	1	
R30 06	CRT1/10-103F	1/10W 10K	1	
R30 07	CRT1/10-103F	1/10W 10K	1	
R30 08	CRT1/10-103F	1/10W 10K	1	
R30 09	CRT1/10-103F	1/10W 10K	1	
R30 10	CRT1/10-103F	1/10W 10K	1	
R30	CRT1/10-202F	1/10W 2K	1	
R30 02	CRT1/10-202F	1/10W 2K	1	
R30 03	CRT1/10-202F	1/10W 2K	1	
R30 04	CRT1/10-202F	1/10W 2K	1	
R30 05	CRT1/10-202F	1/10W 2K	1	
R30 11	CRT1/10-511F	1/10W 510	1	
R31 06	CRT1/10-103F	1/10W 10K	1	
R31 11	CRT1/10-103F	1/10W 10K	1	
R31 10	CRT1/10-103F	1/10W 10K	1	
R31 07	CRT1/10-103F	1/10W 10K	1	
R31 08	CRT1/10-103F	1/10W 10K	1	
R31 09	CRT1/10-103F	1/10W 10K	1	
R31	CRT1/10-104F	1/10W 100K	1	
R31 02	CRT1/10-104F	1/10W 100K	1	
R31 03	CRT1/10-104F	1/10W 100K	1	
R31 04	CRT1/10-104F	1/10W 100K	1	
R31 05	CRT1/10-104F	1/10W 100K	1	
R32	CRT1/10-103F	1/10W 10K	1	
R32 02	CRT1/10-103F	1/10W 10K	1	
R32 03	CRT1/10-103F	1/10W 10K	1	
R32 04	CRT1/10-103F	1/10W 10K	1	
R32 05	CRT1/10-103F	1/10W 10K	1	
R32 06	CRT1/10-103F	1/10W 10K	1	
R32 07	CRT1/10-103F	1/10W 10K	1	
R32 08	CRT1/10-103F	1/10W 10K	1	
R32 09	CRT1/10-103F	1/10W 10K	1	
R32 10	CRT1/10-103F	1/10W 10K	1	
R33 06	CRT1/10-103F	1/10W 10K	1	
R33 11	CRT1/10-103F	1/10W 10K	1	
R33 10	CRT1/10-103F	1/10W 10K	1	
R33 07	CRT1/10-103F	1/10W 10K	1	
R33 08	CRT1/10-103F	1/10W 10K	1	
R33 09	CRT1/10-103F	1/10W 10K	1	
R33	CRT1/10-202F	1/10W 2K	1	
R33 02	CRT1/10-202F	1/10W 2K	1	
R33 03	CRT1/10-202F	1/10W 2K	1	
R33 04	CRT1/10-202F	1/10W 2K	1	
R33 05	CRT1/10-202F	1/10W 2K	1	
R34 06	CRT1/10-103F	1/10W 10K	1	
R34 07	CRT1/10-103F	1/10W 10K	1	
R34 08	CRT1/10-103F	1/10W 10K	1	
R34 09	CRT1/10-103F	1/10W 10K	1	
R34 11	CRT1/10-103F	1/10W 10K	1	
R34 10	CRT1/10-103F	1/10W 10K	1	
R34	CRT1/10-202F	1/10W 2K	1	
R34 02	CRT1/10-202F	1/10W 2K	1	
R34 03	CRT1/10-202F	1/10W 2K	1	
R34 04	CRT1/10-202F	1/10W 2K	1	
R34 05	CRT1/10-202F	1/10W 2K	1	
R35 06	CRT1/10-103F	1/10W 10K	1	
R35 11	CRT1/10-103F	1/10W 10K	1	
R35 10	CRT1/10-103F	1/10W 10K	1	
R35 07	CRT1/10-103F	1/10W 10K	1	
R35 08	CRT1/10-103F	1/10W 10K	1	
R35 09	CRT1/10-103F	1/10W 10K	1	
R35	CRT1/10-512F	1/10W 5.1K	1	
R35 02	CRT1/10-512F	1/10W 5.1K	1	
R35 03	CRT1/10-512F	1/10W 5.1K	1	
R35 04	CRT1/10-512F	1/10W 5.1K	1	
R35 05	CRT1/10-512F	1/10W 5.1K	1	
R36 06	CRT1/10-103F	1/10W 10K	1	
R36 07	CRT1/10-103F	1/10W 10K	1	
R36 08	CRT1/10-103F	1/10W 10K	1	
R36 09	CRT1/10-103F	1/10W 10K	1	
R36 11	CRT1/10-103F	1/10W 10K	1	
R36 10	CRT1/10-103F	1/10W 10K	1	
R36	CRT1/10-122F	1/10W 1.2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R36 02	CRT1/10-122F	1/10W 1.2K	1	
R36 03	CRT1/10-122F	1/10W 1.2K	1	
R36 04	CRT1/10-122F	1/10W 1.2K	1	
R36 05	CRT1/10-122F	1/10W 1.2K	1	
R37 06	CRT1/10-103F	1/10W 10K	1	
R37 11	CRT1/10-103F	1/10W 10K	1	
R37 10	CRT1/10-103F	1/10W 10K	1	
R37 07	CRT1/10-103F	1/10W 10K	1	
R37 08	CRT1/10-103F	1/10W 10K	1	
R37 09	CRT1/10-103F	1/10W 10K	1	
R37	CRT1/8-201F	1/8W 200 OHM	1	
R37 02	CRT1/8-201F	1/8W 200 OHM	1	
R37 03	CRT1/8-201F	1/8W 200 OHM	1	
R37 04	CRT1/8-201F	1/8W 200 OHM	1	
R37 05	CRT1/8-201F	1/8W 200 OHM	1	
R38 06	CRT1/10-103F	1/10W 10K	1	
R38	CRT1/10-202F	1/10W 2K	1	
R38 02	CRT1/10-202F	1/10W 2K	1	
R38 03	CRT1/10-202F	1/10W 2K	1	
R38 04	CRT1/10-202F	1/10W 2K	1	
R38 05	CRT1/10-202F	1/10W 2K	1	
R39	CRT1/10-103F	1/10W 10K	1	
R39 02	CRT1/10-103F	1/10W 10K	1	
R39 03	CRT1/10-103F	1/10W 10K	1	
R39 04	CRT1/10-103F	1/10W 10K	1	
R39 05	CRT1/10-103F	1/10W 10K	1	
R40	CRT1/10-103F	1/10W 10K	1	
R40 02	CRT1/10-103F	1/10W 10K	1	
R40 03	CRT1/10-103F	1/10W 10K	1	
R40 04	CRT1/10-103F	1/10W 10K	1	
R40 05	CRT1/10-103F	1/10W 10K	1	
R41	CRT1/10-103F	1/10W 10K	1	
R41 02	CRT1/10-103F	1/10W 10K	1	
R41 03	CRT1/10-103F	1/10W 10K	1	
R41 04	CRT1/10-103F	1/10W 10K	1	
R41 05	CRT1/10-103F	1/10W 10K	1	
R42	CRT1/10-103F	1/10W 10K	1	
R42 02	CRT1/10-103F	1/10W 10K	1	
R42 03	CRT1/10-103F	1/10W 10K	1	
R42 04	CRT1/10-103F	1/10W 10K	1	
R42 05	CRT1/10-103F	1/10W 10K	1	
R43	CRT1/10-103F	1/10W 10K	1	
R43 02	CRT1/10-103F	1/10W 10K	1	
R43 03	CRT1/10-103F	1/10W 10K	1	
R43 04	CRT1/10-103F	1/10W 10K	1	
R43 05	CRT1/10-103F	1/10W 10K	1	
R44	CRT1/10-103F	1/10W 10K	1	
R44 02	CRT1/10-103F	1/10W 10K	1	
R44 03	CRT1/10-103F	1/10W 10K	1	
R44 04	CRT1/10-103F	1/10W 10K	1	
R44 05	CRT1/10-103F	1/10W 10K	1	
R45	CRT1/10-103F	1/10W 10K	1	
R45 02	CRT1/10-103F	1/10W 10K	1	
R45 03	CRT1/10-103F	1/10W 10K	1	
R45 04	CRT1/10-103F	1/10W 10K	1	
R45 05	CRT1/10-103F	1/10W 10K	1	
R46	CRT1/10-103F	1/10W 10K	1	
R46 02	CRT1/10-103F	1/10W 10K	1	
R46 03	CRT1/10-103F	1/10W 10K	1	
R46 04	CRT1/10-103F	1/10W 10K	1	
R46 05	CRT1/10-103F	1/10W 10K	1	
R47	CRT1/10-103F	1/10W 10K	1	
R47 02	CRT1/10-103F	1/10W 10K	1	
R47 03	CRT1/10-103F	1/10W 10K	1	
R47 04	CRT1/10-103F	1/10W 10K	1	
R47 05	CRT1/10-103F	1/10W 10K	1	
R48	CRT1/10-103F	1/10W 10K	1	
R48 02	CRT1/10-103F	1/10W 10K	1	
R48 03	CRT1/10-103F	1/10W 10K	1	
R48 04	CRT1/10-103F	1/10W 10K	1	
R48 05	CRT1/10-103F	1/10W 10K	1	
R48 06	CRT1/8-270F	1/8W 27	1	
R49	CRT1/10-103F	1/10W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R49 02	CRT1/10-103F	1/10W 10K	1	
R49 03	CRT1/10-103F	1/10W 10K	1	
R49 04	CRT1/10-103F	1/10W 10K	1	
R49 05	CRT1/10-103F	1/10W 10K	1	
R49 06	CRT1/8-270F	1/8W 27	1	
R50	CRT1/10-103F	1/10W 10K	1	
R50 02	CRT1/10-103F	1/10W 10K	1	
R50 03	CRT1/10-103F	1/10W 10K	1	
R50 04	CRT1/10-103F	1/10W 10K	1	
R50 05	CRT1/10-103F	1/10W 10K	1	
R50 06	CRT1/10-152F	1/10W 1.5K	1	
R52	CRT1/10-103F	1/10W 10K	1	
R53	CRT1/10-222F	1/10W 2200	1	
R54	CRT1/10-104F	1/10W 100K	1	
R56	CRT1/10-R00J	1/10W 0	1	
R57	CRT1/10-471F	1/10W 470	1	
R58	CRT1/10-104F	1/10W 100K	1	
R59,60	CRT1/10-202F	1/10W 2K	2	
R61	CRT1/10-103F	1/10W 10K	1	
R62-64	CRT1/10-104F	1/10W 100K	3	
R65,66	CRT1/8-201F	1/8W 200 OHM	2	
R67	CRT1/8-151F	1/8W 150	1	
R68	CRT1/10-R00J	1/10W 0	1	
RTL	G441K1TD10	CIRCUIT BOARD XLED-3	1	⚠
RTL	G441K1TD01	CIRCUIT BOARD YPHOTO-1	1	⚠
RTL	G441K1TD02	CIRCUIT BOARD YPHOTO-2	1	⚠
RTL	G441K1TD03	CIRCUIT BOARD XPHOTO-3	1	⚠
RTL	G441K1TD04	CIRCUIT BOARD XPHOTO-2	1	⚠
RTL	G441K1TD05	CIRCUIT BOARD XPHOTO-1	1	⚠
RTL	G441K1TD06	CIRCUIT BOARD YLED-2	1	⚠
RTL	G441K1TD07	CIRCUIT BOARD YLED-1	1	⚠
RTL	G441K1TD08	CIRCUIT BOARD XLED-1	1	⚠
RTL	G441K1TD09	CIRCUIT BOARD XLED-2	1	⚠
RTL	G441K1TD11	CIRCUIT BOARD CONTROLLER	1	⚠
RTL	G441K1TD12	CIRCUIT BOARD PEN-RECEIVE	1	⚠
SW1	GW-12LCVM	SWITCH	1	
U1 11	MB3773PF-F	IC	1	
U1	TC74HC138AF	IC	1	
U1 02	TC74HC138AF	IC	1	
U1 03	TC74HC138AF	IC	1	
U1 04	TC74HC138AF	IC	1	
U1 05	TC74HC138AF	IC	1	
U1 06	TC74HC138AF	IC	1	
U1 07	TC74HC138AF	IC	1	
U1 08	TC74HC138AF	IC	1	
U1 09	TC74HC138AF	IC	1	
U2	TC74HC138AF	IC	1	
U2 10	TC74HC138AF	IC	1	
U2 09	TC74HC138AF	IC	1	
U2 08	TC74HC138AF	IC	1	
U2 07	TC74HC138AF	IC	1	
U2 06	TC74HC138AF	IC	1	
U2 03	TC74HC138AF	IC	1	
U2 04	TC74HC138AF	IC	1	
U2 02	TC74HC138AF	IC	1	
U2 05	TC74HC138AF	IC	1	
U3 11	HD64F3067-F	IC(CPU)	1	
U3 06	TC74HC138AF	IC	1	
U3 07	TC74HC138AF	IC	1	
U3 10	TC74HC138AF	IC	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
U3 09	TC74HC138AF	IC	1	
U3 08	TC74HC138AF	IC	1	
U3	TC7W53FK-F	IC	1	
U3 02	TC7W53FK-F	IC	1	
U3 03	TC7W53FK-F	IC	1	
U3 05	TC7W53FK-F	IC	1	
U3 04	TC7W53FK-F	IC	1	
U4 07	TC74HC138AF	IC	1	
U4 08	TC74HC138AF	IC	1	
U4 09	TC74HC138AF	IC	1	
U4 10	TC74HC138AF	IC	1	
U4 06	TC74HC238AF	IC	1	
U4	TC74HC4051AF	IC	1	
U4 04	TC74HC4051AF	IC	1	
U4 05	TC74HC4051AF	IC	1	
U4 03	TC74HC4051AF	IC	1	
U4 02	TC74HC4051AF	IC	1	
U4 11	TC74HC541AF	IC	1	
U5 07	TC74HC238AF	IC	1	
U5 08	TC74HC238AF	IC	1	
U5 09	TC74HC238AF	IC	1	
U5 10	TC74HC238AF	IC	1	
U5 11	TC74HC541AF	IC	1	
U5 06	TC7W53FK-F	IC	1	
U5	UPC842G2	LINEAR IC #	1	
U5 05	UPC842G2	LINEAR IC #	1	
U5 04	UPC842G2	LINEAR IC #	1	
U5 02	UPC842G2	LINEAR IC #	1	
U5 03	UPC842G2	LINEAR IC #	1	
U6	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 04	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 05	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 03	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 10	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 02	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 06	TC7W53FK-F	IC	1	
U6 07	TC7W53FK-F	IC	1	
U6 08	TC7W53FK-F	IC	1	
U6 09	TC7W53FK-F	IC	1	
U7 06	BR93L46RF	IC	1	
U7	UPC842G2	LINEAR IC #	1	
U7 05	UPC842G2	LINEAR IC #	1	
U7 02	UPC842G2	LINEAR IC #	1	
U7 04	UPC842G2	LINEAR IC #	1	
U7 03	UPC842G2	LINEAR IC #	1	
U8 06	FT232BL	IC	1	
U8	TC74HC238AF	IC	1	
U8 04	TC74HC238AF	IC	1	
U8 05	TC74HC238AF	IC	1	
U8 03	TC74HC238AF	IC	1	
U9	TC74HC238AF	IC	1	
U9 02	TC74HC238AF	IC	1	
U9 04	TC74HC238AF	IC	1	
U9 03	TC74HC238AF	IC	1	
U9 05	TC7W02FK-F	IC	1	
U10	MB3842PFV-F	IC	1	
U11	MAX202CSE+TL	IC	1	
U12	PIC12F629-F	IC	1	
XTAL1	PBRC20.00HR	20.00MHZ	1	
XTAL2	PBRC6.00HR	6.00MHZ	1	

## 12.4. TY-TP50P8-S Mechanical Replacement parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	ECB-UE220M	USB CABLE(2M)	1	
2	G032-E40409	POLY BAG	5	
3	G032E40412	AIR CUSHION	1	
4	G032R40836	SCREW	10	
5	G263R31001	CORNER PAD	4	
6	G441040004	USB CABLE ASSY	1	
7	G441R0818	BOARD #1	2	
8	G441R21008	CENTER PAD	1	
9	G441040003	BOARD A	2	
10	G441R4081301	USB BOARD #1	1	
11	G441R4081401	USB BOARD #2	1	
12	G441R40821	RUBBER #3	3	
13	G541040003	BOARD B	3	
14	G541R21001	CARTON BOX(BOTTOM)	1	
15	G541R21003	PAD(BIG)	2	
16	G541R21004	PAD(SMALL) LEFT	1	
17	G541R21005	PAD(SMALL) RIGHT	1	
18	G541R21006	CENTER PAD (BIG)	2	
19	G541R21007	CENTER PAD (SMALL)	3	
20	G541R31002	TOP PAD #1	1	
21	G541R31003	TOP PAD #2	2	
22	G541R40801	PROTECT COVER	1	
23	G541R40802	BOARD #2	3	
24	SPC-04536	FFC CABLE1	1	
25	SPC-04537	FFC CABLE2	1	
26	SPC-04538	FFC CABLE3	1	
27	SPC-04539	FFC CABLE4	1	
28	SPC-04540	FFC CABLE5	1	
29	SPC-04541	FFC CABLE6	1	
30	SPC-04542	FFC CABLE7	1	
31	SPC-04543	FFC CABLE8	1	
32	SPC-04544	FFC CABLE9	1	
33	SPC-04545	FFC CABLE10	1	
34	SPC-04546	FFC CABLE11	1	
35	SPC-04547	FFC CABLE12	1	
36	SPC-04549	FFC CABLE PEN-RECEIVE:XLE	1	
37	TPCB87001	CARTON BOX (TOP)	1	
38	TQZW441	INSTRUCTION SEET	1	
39	TQZW463	INSTRUCTION BOOK(JAPAN)	1	△
	TQZW464	INSTRUCTION BOOK(ENGLISH)	1	△
	TQZW465	INSTRUCTION BOOK(GERMAN)	1	△
	TQZW466	INSTRUCTION BOOK(ITALIAN)	1	△
	TQZW467	INSTRUCTION BOOK(FRENCH)	1	△
	TQZW468	INSTRUCTION BOOK(SPANISH)	1	△
	TQZW469	INSTRUCTION BOOK(CHINA)	1	△
	TQZW470	INSTRUCTION BOOK(RUSSIAN)	1	△
	TQZW471	INSTRUCTION BOOK(UKRAINE)	1	△
40	TS-731	CD-ROM	1	
41	TT-0613-08	WASHER	2	
42	TTEA0352	ESCUTCHEON ASSY	1	
42-1	TBMA100	PANASONIC BADGE	1	
	XYN3+F6FN	SCREW M3*6W	2	
	XYN4+F10FN	SCREW M4*10W	4	

## 12.5. TY-TP50P8-S Electrical Replacement parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
FUSE1,2	F0603E1R00-F	1.00A	2	△
C1 07	EEFCD0J470R	47UF	1	
C1 08	EEFCD0J470R	47UF	1	
C1 09	EEFCD0J470R	47UF	1	
C1 12	EEFCD0J470R	47UF	1	
C1 11	EEFCD0J470R	47UF	1	
C1 10	EEFCD0J470R	47UF	1	
C1	G219F11H104Z	50WV 0.1U	1	
C1 14	G219F11H104Z	50WV 0.1U	1	
C1 13	G219F11H104Z	50WV 0.1U	1	
C1 02	G219F11H104Z	50WV 0.1U	1	
C1 03	G219F11H104Z	50WV 0.1U	1	
C1 04	G219F11H104Z	50WV 0.1U	1	
C1 05	G219F11H104Z	50WV 0.1U	1	
C1 06	G219F11H104Z	50WV 0.1U	1	
C2 07	EEFCD0J470R	47UF	1	
C2 12	EEFCD0J470R	47UF	1	
C2 14	EEFCD0J470R	47UF	1	
C2 11	EEFCD0J470R	47UF	1	
C2 08	EEFCD0J470R	47UF	1	
C2 09	EEFCD0J470R	47UF	1	
C2 10	EEFCD0J470R	47UF	1	
C2	G219F11H104Z	50WV 0.1U	1	
C2 02	G219F11H104Z	50WV 0.1U	1	
C2 03	G219F11H104Z	50WV 0.1U	1	
C2 06	G219F11H104Z	50WV 0.1U	1	
C2 05	G219F11H104Z	50WV 0.1U	1	
C2 04	G219F11H104Z	50WV 0.1U	1	
C2 13	G21BB1E334K	16WV 0.33U	1	
C3	G219F11H104Z	50WV 0.1U	1	
C3 03	G219F11H104Z	50WV 0.1U	1	
C3 02	G219F11H104Z	50WV 0.1U	1	
C3 04	G219F11H104Z	50WV 0.1U	1	
C3 12	G219F11H104Z	50WV 0.1U	1	
C3 11	G219F11H104Z	50WV 0.1U	1	
C3 10	G219F11H104Z	50WV 0.1U	1	
C3 09	G219F11H104Z	50WV 0.1U	1	
C3 08	G219F11H104Z	50WV 0.1U	1	
C3 07	G219F11H104Z	50WV 0.1U	1	
C3 06	G219F11H104Z	50WV 0.1U	1	
C3 05	G219F11H104Z	50WV 0.1U	1	
C3 13	G21BB1E334K	16WV 0.33U	1	
C4	G219F11H104Z	50WV 0.1U	1	
C4 03	G219F11H104Z	50WV 0.1U	1	
C4 06	G219F11H104Z	50WV 0.1U	1	
C4 05	G219F11H104Z	50WV 0.1U	1	
C4 04	G219F11H104Z	50WV 0.1U	1	
C4 02	G219F11H104Z	50WV 0.1U	1	
C4 07	G219F11H104Z	50WV 0.1U	1	
C4 13	G219F11H104Z	50WV 0.1U	1	
C4 12	G219F11H104Z	50WV 0.1U	1	
C4 11	G219F11H104Z	50WV 0.1U	1	
C4 10	G219F11H104Z	50WV 0.1U	1	
C4 09	G219F11H104Z	50WV 0.1U	1	
C5	G219F11H104Z	50WV 0.1U	1	
C5 02	G219F11H104Z	50WV 0.1U	1	
C5 13	G219F11H104Z	50WV 0.1U	1	
C5 12	G219F11H104Z	50WV 0.1U	1	
C5 11	G219F11H104Z	50WV 0.1U	1	
C5 10	G219F11H104Z	50WV 0.1U	1	
C5 09	G219F11H104Z	50WV 0.1U	1	
C5 08	G219F11H104Z	50WV 0.1U	1	
C5 07	G219F11H104Z	50WV 0.1U	1	
C5 06	G219F11H104Z	50WV 0.1U	1	
C5 05	G219F11H104Z	50WV 0.1U	1	
C5 04	G219F11H104Z	50WV 0.1U	1	
C5 03	G219F11H104Z	50WV 0.1U	1	
C6 13	EEFCD0J470R	47UF	1	
C6	G216B11H332K	50WV 3300P	1	
C6 02	G216B11H332K	50WV 3300P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C6 04	G216B11H332K	50WV 3300P	1	
C6 06	G216B11H332K	50WV 3300P	1	
C6 05	G216B11H332K	50WV 3300P	1	
C6 03	G216B11H332K	50WV 3300P	1	
C6 07	G219F11H104Z	50WV 0.1U	1	
C6 08	G219F11H104Z	50WV 0.1U	1	
C6 12	G219F11H104Z	50WV 0.1U	1	
C6 11	G219F11H104Z	50WV 0.1U	1	
C6 10	G219F11H104Z	50WV 0.1U	1	
C7	G219F11H104Z	50WV 0.1U	1	
C7 03	G219F11H104Z	50WV 0.1U	1	
C7 02	G219F11H104Z	50WV 0.1U	1	
C7 04	G219F11H104Z	50WV 0.1U	1	
C7 13	G219F11H104Z	50WV 0.1U	1	
C7 12	G219F11H104Z	50WV 0.1U	1	
C7 11	G219F11H104Z	50WV 0.1U	1	
C7 10	G219F11H104Z	50WV 0.1U	1	
C7 09	G219F11H104Z	50WV 0.1U	1	
C7 08	G219F11H104Z	50WV 0.1U	1	
C7 07	G219F11H104Z	50WV 0.1U	1	
C7 06	G219F11H104Z	50WV 0.1U	1	
C7 05	G219F11H104Z	50WV 0.1U	1	
C8 13	G216B11H332K	50WV 3300P	1	
C8	G219F11H104Z	50WV 0.1U	1	
C8 02	G219F11H104Z	50WV 0.1U	1	
C8 04	G219F11H104Z	50WV 0.1U	1	
C8 07	G219F11H104Z	50WV 0.1U	1	
C8 06	G219F11H104Z	50WV 0.1U	1	
C8 05	G219F11H104Z	50WV 0.1U	1	
C8 03	G219F11H104Z	50WV 0.1U	1	
C8 08	G219F11H104Z	50WV 0.1U	1	
C8 12	G219F11H104Z	50WV 0.1U	1	
C8 11	G219F11H104Z	50WV 0.1U	1	
C8 10	G219F11H104Z	50WV 0.1U	1	
C8 09	G219F11H104Z	50WV 0.1U	1	
C9 12	EEFCD0J470R	47UF	1	
C9 13	G2162C1H471J	50WV 470P	1	
C9	G216B11H332K	50WV 3300P	1	
C9 03	G216B11H332K	50WV 3300P	1	
C9 02	G216B11H332K	50WV 3300P	1	
C9 04	G216B11H332K	50WV 3300P	1	
C9 06	G216B11H332K	50WV 3300P	1	
C9 05	G216B11H332K	50WV 3300P	1	
C9 07	G219F11H104Z	50WV 0.1U	1	
C9 11	G219F11H104Z	50WV 0.1U	1	
C9 10	G219F11H104Z	50WV 0.1U	1	
C9 09	G219F11H104Z	50WV 0.1U	1	
C9 08	G219F11H104Z	50WV 0.1U	1	
C10 07	EEFCD0J470R	47UF	1	
C10 11	EEFCD0J470R	47UF	1	
C10 08	EEFCD0J470R	47UF	1	
C10 09	EEFCD0J470R	47UF	1	
C10 10	EEFCD0J470R	47UF	1	
C10	G219F11H104Z	50WV 0.1U	1	
C10 02	G219F11H104Z	50WV 0.1U	1	
C10 03	G219F11H104Z	50WV 0.1U	1	
C10 12	G219F11H104Z	50WV 0.1U	1	
C10 04	G219F11H104Z	50WV 0.1U	1	
C10 05	G219F11H104Z	50WV 0.1U	1	
C10 06	G219F11H104Z	50WV 0.1U	1	
C11 07	EEFCD0J470R	47UF	1	
C11	G219F11H104Z	50WV 0.1U	1	
C11 02	G219F11H104Z	50WV 0.1U	1	
C11 03	G219F11H104Z	50WV 0.1U	1	
C11 04	G219F11H104Z	50WV 0.1U	1	
C11 05	G219F11H104Z	50WV 0.1U	1	
C12	G219F11H104Z	50WV 0.1U	1	
C12 02	G219F11H104Z	50WV 0.1U	1	
C12 03	G219F11H104Z	50WV 0.1U	1	
C12 04	G219F11H104Z	50WV 0.1U	1	
C12 05	G219F11H104Z	50WV 0.1U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C12 06	G219F11H104Z	50WV 0.1U	1	
C13	G219F11H104Z	50WV 0.1U	1	
C13 02	G219F11H104Z	50WV 0.1U	1	
C13 03	G219F11H104Z	50WV 0.1U	1	
C13 04	G219F11H104Z	50WV 0.1U	1	
C13 05	G219F11H104Z	50WV 0.1U	1	
C13 06	G219F11H104Z	50WV 0.1U	1	
C14	G219F11H104Z	50WV 0.1U	1	
C14 02	G219F11H104Z	50WV 0.1U	1	
C14 03	G219F11H104Z	50WV 0.1U	1	
C14 04	G219F11H104Z	50WV 0.1U	1	
C14 05	G219F11H104Z	50WV 0.1U	1	
C14 06	G219F11H104Z	50WV 0.1U	1	
C15	G219F11H104Z	50WV 0.1U	1	
C15 02	G219F11H104Z	50WV 0.1U	1	
C15 03	G219F11H104Z	50WV 0.1U	1	
C15 04	G219F11H104Z	50WV 0.1U	1	
C15 05	G219F11H104Z	50WV 0.1U	1	
C15 06	G219F11H104Z	50WV 0.1U	1	
C16	G219F11H104Z	50WV 0.1U	1	
C16 02	G219F11H104Z	50WV 0.1U	1	
C16 03	G219F11H104Z	50WV 0.1U	1	
C16 04	G219F11H104Z	50WV 0.1U	1	
C16 05	G219F11H104Z	50WV 0.1U	1	
C16 06	G219F11H104Z	50WV 0.1U	1	
C16 07	G219F11H104Z	50WV 0.1U	1	
C17 07	EEFCD1C2R2R	16VÅ@2.2U	1	
C17	G219F11H104Z	50WV 0.1U	1	
C17 02	G219F11H104Z	50WV 0.1U	1	
C17 03	G219F11H104Z	50WV 0.1U	1	
C17 04	G219F11H104Z	50WV 0.1U	1	
C17 05	G219F11H104Z	50WV 0.1U	1	
C17 06	G219F11H104Z	50WV 0.1U	1	
C18 03	EEFCD0J470R	47UF	1	
C18	G219F11H104Z	50WV 0.1U	1	
C18 04	G219F11H104Z	50WV 0.1U	1	
C18 05	G219F11H104Z	50WV 0.1U	1	
C18 06	G219F11H104Z	50WV 0.1U	1	
C19	G219F11H104Z	50WV 0.1U	1	
C19 02	G219F11H104Z	50WV 0.1U	1	
C19 03	G219F11H104Z	50WV 0.1U	1	
C19 04	G219F11H104Z	50WV 0.1U	1	
C20	G219F11H104Z	50WV 0.1U	1	
C20 02	G219F11H104Z	50WV 0.1U	1	
C20 03	G219F11H104Z	50WV 0.1U	1	
C20 04	G219F11H104Z	50WV 0.1U	1	
C20 05	G219F11H104Z	50WV 0.1U	1	
C20 06	G219F11H104Z	50WV 0.1U	1	
C21 06	G219B11H333K	50WV 0.033U	1	
C21	G219F11H104Z	50WV 0.1U	1	
C21 02	G219F11H104Z	50WV 0.1U	1	
C21 03	G219F11H104Z	50WV 0.1U	1	
C21 04	G219F11H104Z	50WV 0.1U	1	
C22	G219F11H104Z	50WV 0.1U	1	
C22 02	G219F11H104Z	50WV 0.1U	1	
C22 03	G219F11H104Z	50WV 0.1U	1	
C22 04	G219F11H104Z	50WV 0.1U	1	
C22 05	G219F11H104Z	50WV 0.1U	1	
C22 06	G219F11H104Z	50WV 0.1U	1	
C23	EEFCD0J470R	47UF	1	
C23 02	EEFCD0J470R	47UF	1	
C23 03	EEFCD0J470R	47UF	1	
C23 04	EEFCD0J470R	47UF	1	
C23 05	EEFCD0J470R	47UF	1	
C25	G219F11H104Z	50WV 0.1U	1	
C26,27	G216B11H103K	50WV 0.01U	2	
C28,29	G219F11H104Z	50WV 0.1U	2	
C30	EEFCD0J470R	47UF	1	
C31	G219F11H104Z	50WV 0.1U	1	
C32-35	G21BF11H224Z	50WV 0.22U	4	
C36	G219F11H104Z	50WV 0.1U	1	
D1-D3	1S2835-F	DIODE	3	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D4	NNCD5.6F-F	DIODE	1	
D5,D6	NNCD6.2MF-F	DIODE	2	
D7	NNCD5.6F-F	DIODE	1	
D8,D9	NNCD12F	DIODE	2	
FC1,C2	EXCML20A390U	BEAD CHOKE	2	
J1 02	DF14A-3P-F	3P CONNECTOR	1	
J1	UBB-4R-D14-F	USB CONNECTOR	1	
J4	52435-2672	FPC CONNECTOR 26P	1	
J9,10	52435-2672	FPC CONNECTOR 26P	2	
J10 05	52435-2672	FPC CONNECTOR 26P	1	
J10 04	52435-2672	FPC CONNECTOR 26P	1	
J10 02	52435-2672	FPC CONNECTOR 26P	1	
J11	52435-2672	FPC CONNECTOR 26P	1	
J11 03	52435-2672	FPC CONNECTOR 26P	1	
J11 04	52435-2672	FPC CONNECTOR 26P	1	
J11 05	52435-2672	FPC CONNECTOR 26P	1	
J11 02	52435-2672	FPC CONNECTOR 26P	1	
J13	52435-2672	FPC CONNECTOR 26P	1	
J13 02	52435-2672	FPC CONNECTOR 26P	1	
J13 03	52435-2672	FPC CONNECTOR 26P	1	
J13 05	52435-2672	FPC CONNECTOR 26P	1	
J14	52435-2672	FPC CONNECTOR 26P	1	
J14 04	52435-2672	FPC CONNECTOR 26P	1	
J14 05	52435-2672	FPC CONNECTOR 26P	1	
J14 03	52435-2672	FPC CONNECTOR 26P	1	
J14 02	52435-2672	FPC CONNECTOR 26P	1	
J15	DF14A-3P-F	3P CONNECTOR	1	
J16-19	52435-2672	FPC CONNECTOR 26P	4	
L1	DNP319	LED	1	
L1 06	DNP319	LED	1	
L1 05	DNP319	LED	1	
L1 02	DNP319	LED	1	
L1 03	DNP319	LED	1	
L2	DNP319	LED	1	
L2 02	DNP319	LED	1	
L2 03	DNP319	LED	1	
L2 04	DNP319	LED	1	
L2 06	DNP319	LED	1	
L3	DNP319	LED	1	
L3 02	DNP319	LED	1	
L3 05	DNP319	LED	1	
L3 04	DNP319	LED	1	
L3 03	DNP319	LED	1	
L4	DNP319	LED	1	
L4 04	DNP319	LED	1	
L4 06	DNP319	LED	1	
L4 05	DNP319	LED	1	
L4 03	DNP319	LED	1	
L5	DNP319	LED	1	
L5 02	DNP319	LED	1	
L5 04	DNP319	LED	1	
L5 06	DNP319	LED	1	
L5 05	DNP319	LED	1	
L6	DNP319	LED	1	
L6 02	DNP319	LED	1	
L6 03	DNP319	LED	1	
L6 04	DNP319	LED	1	
L6 06	DNP319	LED	1	
L7	DNP319	LED	1	
L7 02	DNP319	LED	1	
L7 05	DNP319	LED	1	
L7 04	DNP319	LED	1	
L7 03	DNP319	LED	1	
L8	DNP319	LED	1	
L8 04	DNP319	LED	1	
L8 06	DNP319	LED	1	
L8 05	DNP319	LED	1	
L8 03	DNP319	LED	1	
L9	DNP319	LED	1	
L9 02	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L9 04	DNP319	LED	1	
L9 06	DNP319	LED	1	
L9 05	DNP319	LED	1	
L10	DNP319	LED	1	
L10 04	DNP319	LED	1	
L10 06	DNP319	LED	1	
L10 05	DNP319	LED	1	
L10 03	DNP319	LED	1	
L11	DNP319	LED	1	
L11 03	DNP319	LED	1	
L11 04	DNP319	LED	1	
L11 06	DNP319	LED	1	
L11 05	DNP319	LED	1	
L12	DNP319	LED	1	
L12 02	DNP319	LED	1	
L12 04	DNP319	LED	1	
L12 05	DNP319	LED	1	
L12 06	DNP319	LED	1	
L13	DNP319	LED	1	
L13 06	DNP319	LED	1	
L13 05	DNP319	LED	1	
L13 02	DNP319	LED	1	
L13 03	DNP319	LED	1	
L14	DNP319	LED	1	
L14 04	DNP319	LED	1	
L14 06	DNP319	LED	1	
L14 05	DNP319	LED	1	
L14 03	DNP319	LED	1	
L15	DNP319	LED	1	
L15 03	DNP319	LED	1	
L15 04	DNP319	LED	1	
L15 06	DNP319	LED	1	
L15 05	DNP319	LED	1	
L16	DNP319	LED	1	
L16 02	DNP319	LED	1	
L16 04	DNP319	LED	1	
L16 05	DNP319	LED	1	
L16 06	DNP319	LED	1	
L17	DNP319	LED	1	
L17 06	DNP319	LED	1	
L17 05	DNP319	LED	1	
L17 02	DNP319	LED	1	
L17 03	DNP319	LED	1	
L18	DNP319	LED	1	
L18 04	DNP319	LED	1	
L18 06	DNP319	LED	1	
L18 05	DNP319	LED	1	
L18 03	DNP319	LED	1	
L19	DNP319	LED	1	
L19 03	DNP319	LED	1	
L19 04	DNP319	LED	1	
L19 06	DNP319	LED	1	
L19 05	DNP319	LED	1	
L20	DNP319	LED	1	
L20 02	DNP319	LED	1	
L20 04	DNP319	LED	1	
L20 05	DNP319	LED	1	
L20 06	DNP319	LED	1	
L21	DNP319	LED	1	
L21 06	DNP319	LED	1	
L21 05	DNP319	LED	1	
L21 02	DNP319	LED	1	
L21 03	DNP319	LED	1	
L22	DNP319	LED	1	
L22 04	DNP319	LED	1	
L22 06	DNP319	LED	1	
L22 05	DNP319	LED	1	
L22 03	DNP319	LED	1	
L23	DNP319	LED	1	
L23 03	DNP319	LED	1	
L23 04	DNP319	LED	1	
L23 06	DNP319	LED	1	
L23 05	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L24	DNP319	LED	1	
L24 02	DNP319	LED	1	
L24 04	DNP319	LED	1	
L24 05	DNP319	LED	1	
L24 06	DNP319	LED	1	
L25	DNP319	LED	1	
L25 06	DNP319	LED	1	
L25 05	DNP319	LED	1	
L25 02	DNP319	LED	1	
L25 03	DNP319	LED	1	
L26	DNP319	LED	1	
L26 04	DNP319	LED	1	
L26 06	DNP319	LED	1	
L26 05	DNP319	LED	1	
L26 03	DNP319	LED	1	
L27	DNP319	LED	1	
L27 03	DNP319	LED	1	
L27 04	DNP319	LED	1	
L27 06	DNP319	LED	1	
L27 05	DNP319	LED	1	
L28	DNP319	LED	1	
L28 02	DNP319	LED	1	
L28 04	DNP319	LED	1	
L28 05	DNP319	LED	1	
L28 06	DNP319	LED	1	
L29	DNP319	LED	1	
L29 06	DNP319	LED	1	
L29 05	DNP319	LED	1	
L29 02	DNP319	LED	1	
L29 03	DNP319	LED	1	
L30	DNP319	LED	1	
L30 04	DNP319	LED	1	
L30 06	DNP319	LED	1	
L30 05	DNP319	LED	1	
L30 03	DNP319	LED	1	
L31	DNP319	LED	1	
L31 03	DNP319	LED	1	
L31 04	DNP319	LED	1	
L31 06	DNP319	LED	1	
L31 05	DNP319	LED	1	
L32	DNP319	LED	1	
L32 02	DNP319	LED	1	
L32 04	DNP319	LED	1	
L32 05	DNP319	LED	1	
L32 06	DNP319	LED	1	
L33	DNP319	LED	1	
L33 06	DNP319	LED	1	
L33 05	DNP319	LED	1	
L33 02	DNP319	LED	1	
L33 03	DNP319	LED	1	
L34	DNP319	LED	1	
L34 04	DNP319	LED	1	
L34 06	DNP319	LED	1	
L34 05	DNP319	LED	1	
L34 03	DNP319	LED	1	
L35	DNP319	LED	1	
L35 03	DNP319	LED	1	
L35 04	DNP319	LED	1	
L35 06	DNP319	LED	1	
L35 05	DNP319	LED	1	
L36	DNP319	LED	1	
L36 02	DNP319	LED	1	
L36 04	DNP319	LED	1	
L36 05	DNP319	LED	1	
L36 06	DNP319	LED	1	
L37	DNP319	LED	1	
L37 06	DNP319	LED	1	
L37 05	DNP319	LED	1	
L37 02	DNP319	LED	1	
L37 03	DNP319	LED	1	
L38	DNP319	LED	1	
L38 04	DNP319	LED	1	
L38 06	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L38 05	DNP319	LED	1	
L38 03	DNP319	LED	1	
L39	DNP319	LED	1	
L39 03	DNP319	LED	1	
L39 04	DNP319	LED	1	
L39 06	DNP319	LED	1	
L39 05	DNP319	LED	1	
L40	DNP319	LED	1	
L40 02	DNP319	LED	1	
L40 04	DNP319	LED	1	
L40 05	DNP319	LED	1	
L40 06	DNP319	LED	1	
L41	DNP319	LED	1	
L41 06	DNP319	LED	1	
L41 05	DNP319	LED	1	
L41 02	DNP319	LED	1	
L41 03	DNP319	LED	1	
L42	DNP319	LED	1	
L42 04	DNP319	LED	1	
L42 06	DNP319	LED	1	
L42 05	DNP319	LED	1	
L42 03	DNP319	LED	1	
L43	DNP319	LED	1	
L43 03	DNP319	LED	1	
L43 04	DNP319	LED	1	
L43 06	DNP319	LED	1	
L43 05	DNP319	LED	1	
L44	DNP319	LED	1	
L44 02	DNP319	LED	1	
L44 04	DNP319	LED	1	
L44 05	DNP319	LED	1	
L45	DNP319	LED	1	
L45 05	DNP319	LED	1	
L45 04	DNP319	LED	1	
L45 02	DNP319	LED	1	
L46	DNP319	LED	1	
L46 03	DNP319	LED	1	
L46 04	DNP319	LED	1	
L46 05	DNP319	LED	1	
L47	DNP319	LED	1	
L47 02	DNP319	LED	1	
L47 03	DNP319	LED	1	
L47 05	DNP319	LED	1	
L48	DNP319	LED	1	
L48 04	DNP319	LED	1	
L48 05	DNP319	LED	1	
L48 03	DNP319	LED	1	
L49	DNP319	LED	1	
L49 03	DNP319	LED	1	
L49 04	DNP319	LED	1	
L49 05	DNP319	LED	1	
L50	DNP319	LED	1	
L50 05	DNP319	LED	1	
L50 02	DNP319	LED	1	
L50 03	DNP319	LED	1	
L51	DNP319	LED	1	
L51 03	DNP319	LED	1	
L51 05	DNP319	LED	1	
L51 04	DNP319	LED	1	
L52	DNP319	LED	1	
L52 02	DNP319	LED	1	
L52 04	DNP319	LED	1	
L52 05	DNP319	LED	1	
L53	DNP319	LED	1	
L53 05	DNP319	LED	1	
L53 04	DNP319	LED	1	
L53 02	DNP319	LED	1	
L54	DNP319	LED	1	
L54 03	DNP319	LED	1	
L54 04	DNP319	LED	1	
L54 05	DNP319	LED	1	
L55	DNP319	LED	1	
L55 02	DNP319	LED	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
L55 03	DNP319	LED	1	
L55 05	DNP319	LED	1	
L56	DNP319	LED	1	
L56 04	DNP319	LED	1	
L56 05	DNP319	LED	1	
L56 03	DNP319	LED	1	
L57	DNP319	LED	1	
L57 03	DNP319	LED	1	
L57 04	DNP319	LED	1	
L57 05	DNP319	LED	1	
L58	DNP319	LED	1	
L58 05	DNP319	LED	1	
L58 02	DNP319	LED	1	
L58 03	DNP319	LED	1	
L59	DNP319	LED	1	
L59 03	DNP319	LED	1	
L59 05	DNP319	LED	1	
L59 04	DNP319	LED	1	
L60	DNP319	LED	1	
L60 02	DNP319	LED	1	
L60 04	DNP319	LED	1	
L60 05	DNP319	LED	1	
L61	DNP319	LED	1	
L61 05	DNP319	LED	1	
L61 04	DNP319	LED	1	
L61 02	DNP319	LED	1	
L62	DNP319	LED	1	
L62 03	DNP319	LED	1	
L62 04	DNP319	LED	1	
L62 05	DNP319	LED	1	
L63	DNP319	LED	1	
L63 02	DNP319	LED	1	
L63 03	DNP319	LED	1	
L63 05	DNP319	LED	1	
L64	DNP319	LED	1	
L64 04	DNP319	LED	1	
L64 05	DNP319	LED	1	
L64 03	DNP319	LED	1	
L65	DNP319	LED	1	
L65 03	DNP319	LED	1	
L65 04	DNP319	LED	1	
L65 05	DNP319	LED	1	
L66	DNP319	LED	1	
L66 05	DNP319	LED	1	
L66 02	DNP319	LED	1	
L66 03	DNP319	LED	1	
L67	DNP319	LED	1	
L67 03	DNP319	LED	1	
L67 05	DNP319	LED	1	
L67 04	DNP319	LED	1	
L68	DNP319	LED	1	
L68 02	DNP319	LED	1	
L68 04	DNP319	LED	1	
L68 05	DNP319	LED	1	
L69	DNP319	LED	1	
L69 05	DNP319	LED	1	
L69 04	DNP319	LED	1	
L69 02	DNP319	LED	1	
L70	DNP319	LED	1	
L70 03	DNP319	LED	1	
L70 04	DNP319	LED	1	
L70 05	DNP319	LED	1	
L71	DNP319	LED	1	
L71 02	DNP319	LED	1	
L71 03	DNP319	LED	1	
L71 05	DNP319	LED	1	
L72	DNP319	LED	1	
L72 04	DNP319	LED	1	
L72 05	DNP319	LED	1	
L72 03	DNP319	LED	1	
L73	DNP319	LED	1	
L73 03	DNP319	LED	1	
L73 04	DNP319	LED	1	









Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q9 04	FP1L2Q-F	TRANSISTOR	1	
Q9 02	FP1L2Q-F	TRANSISTOR	1	
Q9 05	FP1L2Q-F	TRANSISTOR	1	
Q10 06	FB1L2Q-F	TRANSISTOR	1	
Q10	FP1L2Q-F	TRANSISTOR	1	
Q10 05	FP1L2Q-F	TRANSISTOR	1	
Q10 02	FP1L2Q-F	TRANSISTOR	1	
Q10 03	FP1L2Q-F	TRANSISTOR	1	
Q10 04	FP1L2Q-F	TRANSISTOR	1	
Q11	FB1L2Q-F	TRANSISTOR	1	
Q11 04	FB1L2Q-F	TRANSISTOR	1	
Q11 06	FB1L2Q-F	TRANSISTOR	1	
Q11 05	FB1L2Q-F	TRANSISTOR	1	
Q11 03	FB1L2Q-F	TRANSISTOR	1	
Q12	FB1L2Q-F	TRANSISTOR	1	
Q12 03	FB1L2Q-F	TRANSISTOR	1	
Q12 04	FB1L2Q-F	TRANSISTOR	1	
Q12 06	FB1L2Q-F	TRANSISTOR	1	
Q12 05	FB1L2Q-F	TRANSISTOR	1	
Q13	FB1L2Q-F	TRANSISTOR	1	
Q13 02	FB1L2Q-F	TRANSISTOR	1	
Q13 04	FB1L2Q-F	TRANSISTOR	1	
Q13 05	FB1L2Q-F	TRANSISTOR	1	
Q13 06	FB1L2Q-F	TRANSISTOR	1	
Q14	FB1L2Q-F	TRANSISTOR	1	
Q14 06	FB1L2Q-F	TRANSISTOR	1	
Q14 05	FB1L2Q-F	TRANSISTOR	1	
Q14 02	FB1L2Q-F	TRANSISTOR	1	
Q14 03	FB1L2Q-F	TRANSISTOR	1	
Q15	FB1L2Q-F	TRANSISTOR	1	
Q15 04	FB1L2Q-F	TRANSISTOR	1	
Q15 05	FB1L2Q-F	TRANSISTOR	1	
Q15 03	FB1L2Q-F	TRANSISTOR	1	
Q16	FB1L2Q-F	TRANSISTOR	1	
Q16 03	FB1L2Q-F	TRANSISTOR	1	
Q16 04	FB1L2Q-F	TRANSISTOR	1	
Q16 05	FB1L2Q-F	TRANSISTOR	1	
Q17	FB1L2Q-F	TRANSISTOR	1	
Q17 05	FB1L2Q-F	TRANSISTOR	1	
Q17 02	FB1L2Q-F	TRANSISTOR	1	
Q17 03	FB1L2Q-F	TRANSISTOR	1	
Q18	FB1L2Q-F	TRANSISTOR	1	
Q18 03	FB1L2Q-F	TRANSISTOR	1	
Q18 05	FB1L2Q-F	TRANSISTOR	1	
Q18 04	FB1L2Q-F	TRANSISTOR	1	
Q18 02	FB1L2Q-F	TRANSISTOR	1	
R1 03	CRT1/10-103F	1/10W 10K	1	
R1 04	CRT1/10-470F	1/10W 47	1	
R1	CRT1/10-R00J	1/10W 0	1	
R1 02	CRT1/10-R00J	1/10W 0	1	
R2 03	CRT1/10-102F	1/10W 1K	1	
R2	CRT1/10-R00J	1/10W 0	1	
R2 02	CRT1/10-R00J	1/10W 0	1	
R3 03	CRT1/10-332F	1/10W 3.3K	1	
R3	CRT1/10-R00J	1/10W 0	1	
R3 02	CRT1/10-R00J	1/10W 0	1	
R4 03	CRT1/10-152F	1/10W 1.5K	1	
R4	CRT1/10-R00J	1/10W 0	1	
R4 02	CRT1/10R00JU	1/10W 0	1	
R6,R7	CRT1/10-102F	1/10W 1K	2	
R8,R9	CRT1/10-R00J	1/10W 0	2	
R9 03	CRT1/10-R00J	1/10W 0	1	
R10	CRT1/10-R00J	1/10W 0	1	
R10 03	CRT1/10-R00J	1/10W 0	1	
R11	CRT1/10-R00J	1/10W 0	1	
R13	CRT1/10-101F	1/10W 100	1	
R14-17	CRT1/10-103F	1/10W 10K	4	
R17 04	CRT1/10-103F	1/10W 10K	1	
R17 06	CRT1/10-103F	1/10W 10K	1	
R17 05	CRT1/10-103F	1/10W 10K	1	
R17 03	CRT1/10-103F	1/10W 10K	1	
R17 02	CRT1/10-103F	1/10W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R17 13	CRT1/10-103F	1/10W 10K	1	
R17 07	CRT1/8-100F	1/8W 10	1	
R17 09	CRT1/8-100F	1/8W 10	1	
R17 10	CRT1/8-100F	1/8W 10	1	
R17 12	CRT1/8-100F	1/8W 10	1	
R17 11	CRT1/8-100F	1/8W 10	1	
R17 08	CRT1/8-100F	1/8W 10	1	
R18	CRT1/10-103F	1/10W 10K	1	
R18 13	CRT1/10-103F	1/10W 10K	1	
R18 03	CRT1/10-103F	1/10W 10K	1	
R18 04	CRT1/10-103F	1/10W 10K	1	
R18 05	CRT1/10-103F	1/10W 10K	1	
R18 06	CRT1/10-103F	1/10W 10K	1	
R18 02	CRT1/10-103F	1/10W 10K	1	
R18 07	CRT1/8-100F	1/8W 10	1	
R18 12	CRT1/8-100F	1/8W 10	1	
R18 08	CRT1/8-100F	1/8W 10	1	
R18 09	CRT1/8-100F	1/8W 10	1	
R18 11	CRT1/8-100F	1/8W 10	1	
R18 10	CRT1/8-100F	1/8W 10	1	
R19	CRT1/10-103F	1/10W 10K	1	
R19 06	CRT1/10-103F	1/10W 10K	1	
R19 05	CRT1/10-103F	1/10W 10K	1	
R19 02	CRT1/10-103F	1/10W 10K	1	
R19 13	CRT1/10-103F	1/10W 10K	1	
R19 03	CRT1/10-103F	1/10W 10K	1	
R19 04	CRT1/10-103F	1/10W 10K	1	
R19 07	CRT1/8-120F	1/8W 12	1	
R19 10	CRT1/8-120F	1/8W 12	1	
R19 12	CRT1/8-120F	1/8W 12	1	
R19 11	CRT1/8-120F	1/8W 12	1	
R19 09	CRT1/8-120F	1/8W 12	1	
R19 08	CRT1/8-120F	1/8W 12	1	
R20	CRT1/10-103F	1/10W 10K	1	
R20 03	CRT1/10-103F	1/10W 10K	1	
R20 05	CRT1/10-103F	1/10W 10K	1	
R20 06	CRT1/10-103F	1/10W 10K	1	
R20 04	CRT1/10-103F	1/10W 10K	1	
R20 02	CRT1/10-103F	1/10W 10K	1	
R20 13	CRT1/10-103F	1/10W 10K	1	
R20 07	CRT1/8-120F	1/8W 12	1	
R20 09	CRT1/8-120F	1/8W 12	1	
R20 10	CRT1/8-120F	1/8W 12	1	
R20 11	CRT1/8-120F	1/8W 12	1	
R20 12	CRT1/8-120F	1/8W 12	1	
R20 08	CRT1/8-120F	1/8W 12	1	
R21	CRT1/10-103F	1/10W 10K	1	
R21 02	CRT1/10-103F	1/10W 10K	1	
R21 13	CRT1/10-103F	1/10W 10K	1	
R21 04	CRT1/10-103F	1/10W 10K	1	
R21 05	CRT1/10-103F	1/10W 10K	1	
R21 06	CRT1/10-103F	1/10W 10K	1	
R21 03	CRT1/10-103F	1/10W 10K	1	
R21 07	CRT1/8-120F	1/8W 12	1	
R21 12	CRT1/8-120F	1/8W 12	1	
R21 11	CRT1/8-120F	1/8W 12	1	
R21 08	CRT1/8-120F	1/8W 12	1	
R21 09	CRT1/8-120F	1/8W 12	1	
R21 10	CRT1/8-120F	1/8W 12	1	
R22	CRT1/10-103F	1/10W 10K	1	
R22 05	CRT1/10-103F	1/10W 10K	1	
R22 06	CRT1/10-103F	1/10W 10K	1	
R22 04	CRT1/10-103F	1/10W 10K	1	
R22 02	CRT1/10-103F	1/10W 10K	1	
R22 13	CRT1/10-103F	1/10W 10K	1	
R22 03	CRT1/10-103F	1/10W 10K	1	
R22 07	CRT1/8-120F	1/8W 12	1	
R22 09	CRT1/8-120F	1/8W 12	1	
R22 11	CRT1/8-120F	1/8W 12	1	
R22 12	CRT1/8-120F	1/8W 12	1	
R22 10	CRT1/8-120F	1/8W 12	1	
R22 08	CRT1/8-120F	1/8W 12	1	
R23	CRT1/10-103F	1/10W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R23 03	CRT1/10-103F	1/10W 10K	1	
R23 04	CRT1/10-103F	1/10W 10K	1	
R23 13	CRT1/10-103F	1/10W 10K	1	
R23 06	CRT1/10-103F	1/10W 10K	1	
R23 05	CRT1/10-103F	1/10W 10K	1	
R23 02	CRT1/10-103F	1/10W 10K	1	
R23 07	CRT1/10-302F	1/10W 3K	1	
R23 08	CRT1/10-302F	1/10W 3K	1	
R23 10	CRT1/10-302F	1/10W 3K	1	
R23 11	CRT1/10-302F	1/10W 3K	1	
R23 12	CRT1/10-302F	1/10W 3K	1	
R23 09	CRT1/10-302F	1/10W 3K	1	
R24	CRT1/10-103F	1/10W 10K	1	
R24 06	CRT1/10-103F	1/10W 10K	1	
R24 02	CRT1/10-103F	1/10W 10K	1	
R24 13	CRT1/10-103F	1/10W 10K	1	
R24 03	CRT1/10-103F	1/10W 10K	1	
R24 05	CRT1/10-103F	1/10W 10K	1	
R24 04	CRT1/10-103F	1/10W 10K	1	
R24 07	CRT1/10-152F	1/10W 1.5K	1	
R24 11	CRT1/10-152F	1/10W 1.5K	1	
R24 12	CRT1/10-152F	1/10W 1.5K	1	
R24 10	CRT1/10-152F	1/10W 1.5K	1	
R24 08	CRT1/10-152F	1/10W 1.5K	1	
R24 09	CRT1/10-152F	1/10W 1.5K	1	
R25	CRT1/10-103F	1/10W 10K	1	
R25 04	CRT1/10-103F	1/10W 10K	1	
R25 06	CRT1/10-103F	1/10W 10K	1	
R25 08	CRT1/10-103F	1/10W 10K	1	
R25 10	CRT1/10-103F	1/10W 10K	1	
R25 12	CRT1/10-103F	1/10W 10K	1	
R25 13	CRT1/10-103F	1/10W 10K	1	
R25 11	CRT1/10-103F	1/10W 10K	1	
R25 09	CRT1/10-103F	1/10W 10K	1	
R25 07	CRT1/10-103F	1/10W 10K	1	
R25 05	CRT1/10-103F	1/10W 10K	1	
R25 03	CRT1/10-103F	1/10W 10K	1	
R26	CRT1/10-103F	1/10W 10K	1	
R26 13	CRT1/10-103F	1/10W 10K	1	
R26 12	CRT1/10-103F	1/10W 10K	1	
R26 11	CRT1/10-103F	1/10W 10K	1	
R26 10	CRT1/10-103F	1/10W 10K	1	
R26 09	CRT1/10-103F	1/10W 10K	1	
R26 08	CRT1/10-103F	1/10W 10K	1	
R26 03	CRT1/10-103F	1/10W 10K	1	
R26 04	CRT1/10-103F	1/10W 10K	1	
R26 05	CRT1/10-103F	1/10W 10K	1	
R26 07	CRT1/10-103F	1/10W 10K	1	
R26 06	CRT1/10-103F	1/10W 10K	1	
R27	CRT1/10-103F	1/10W 10K	1	
R27 06	CRT1/10-103F	1/10W 10K	1	
R27 08	CRT1/10-103F	1/10W 10K	1	
R27 10	CRT1/10-103F	1/10W 10K	1	
R27 13	CRT1/10-103F	1/10W 10K	1	
R27 12	CRT1/10-103F	1/10W 10K	1	
R27 11	CRT1/10-103F	1/10W 10K	1	
R27 09	CRT1/10-103F	1/10W 10K	1	
R27 07	CRT1/10-103F	1/10W 10K	1	
R27 05	CRT1/10-103F	1/10W 10K	1	
R27 02	CRT1/10-103F	1/10W 10K	1	
R27 03	CRT1/10-103F	1/10W 10K	1	
R28 07	CRT1/10-103F	1/10W 10K	1	
R28 09	CRT1/10-103F	1/10W 10K	1	
R28 12	CRT1/10-103F	1/10W 10K	1	
R28 11	CRT1/10-103F	1/10W 10K	1	
R28 10	CRT1/10-103F	1/10W 10K	1	
R28 08	CRT1/10-103F	1/10W 10K	1	
R28 13	CRT1/10-103F	1/10W 10K	1	
R28	CRT1/10-104F	1/10W 100K	1	
R28 03	CRT1/10-104F	1/10W 100K	1	
R28 05	CRT1/10-104F	1/10W 100K	1	
R28 06	CRT1/10-104F	1/10W 100K	1	
R28 04	CRT1/10-104F	1/10W 100K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R28 02	CRT1/10-104F	1/10W 100K	1	
R29	CRT1/10-103F	1/10W 10K	1	
R29 08	CRT1/10-103F	1/10W 10K	1	
R29 13	CRT1/10-103F	1/10W 10K	1	
R29 12	CRT1/10-103F	1/10W 10K	1	
R29 11	CRT1/10-103F	1/10W 10K	1	
R29 10	CRT1/10-103F	1/10W 10K	1	
R29 09	CRT1/10-103F	1/10W 10K	1	
R29 07	CRT1/10-103F	1/10W 10K	1	
R29 02	CRT1/10-103F	1/10W 10K	1	
R29 04	CRT1/10-103F	1/10W 10K	1	
R29 05	CRT1/10-103F	1/10W 10K	1	
R29 06	CRT1/10-103F	1/10W 10K	1	
R30 07	CRT1/10-103F	1/10W 10K	1	
R30 08	CRT1/10-103F	1/10W 10K	1	
R30 10	CRT1/10-103F	1/10W 10K	1	
R30 09	CRT1/10-103F	1/10W 10K	1	
R30 11	CRT1/10-103F	1/10W 10K	1	
R30 12	CRT1/10-103F	1/10W 10K	1	
R30	CRT1/10-202F	1/10W 2K	1	
R30 05	CRT1/10-202F	1/10W 2K	1	
R30 06	CRT1/10-202F	1/10W 2K	1	
R30 04	CRT1/10-202F	1/10W 2K	1	
R30 02	CRT1/10-202F	1/10W 2K	1	
R30 03	CRT1/10-202F	1/10W 2K	1	
R30 13	CRT1/10-511F	1/10W 510	1	
R31 07	CRT1/10-103F	1/10W 10K	1	
R31 08	CRT1/10-103F	1/10W 10K	1	
R31 10	CRT1/10-103F	1/10W 10K	1	
R31 13	CRT1/10-103F	1/10W 10K	1	
R31 12	CRT1/10-103F	1/10W 10K	1	
R31 11	CRT1/10-103F	1/10W 10K	1	
R31 09	CRT1/10-103F	1/10W 10K	1	
R31	CRT1/10-104F	1/10W 100K	1	
R31 03	CRT1/10-104F	1/10W 100K	1	
R31 04	CRT1/10-104F	1/10W 100K	1	
R31 06	CRT1/10-104F	1/10W 100K	1	
R31 05	CRT1/10-104F	1/10W 100K	1	
R31 02	CRT1/10-104F	1/10W 100K	1	
R32	CRT1/10-103F	1/10W 10K	1	
R32 07	CRT1/10-103F	1/10W 10K	1	
R32 09	CRT1/10-103F	1/10W 10K	1	
R32 13	CRT1/10-103F	1/10W 10K	1	
R32 12	CRT1/10-103F	1/10W 10K	1	
R32 11	CRT1/10-103F	1/10W 10K	1	
R32 10	CRT1/10-103F	1/10W 10K	1	
R32 08	CRT1/10-103F	1/10W 10K	1	
R32 06	CRT1/10-103F	1/10W 10K	1	
R32 02	CRT1/10-103F	1/10W 10K	1	
R32 03	CRT1/10-103F	1/10W 10K	1	
R32 05	CRT1/10-103F	1/10W 10K	1	
R33 07	CRT1/10-103F	1/10W 10K	1	
R33 11	CRT1/10-103F	1/10W 10K	1	
R33 10	CRT1/10-103F	1/10W 10K	1	
R33 09	CRT1/10-103F	1/10W 10K	1	
R33 08	CRT1/10-103F	1/10W 10K	1	
R33 12	CRT1/10-103F	1/10W 10K	1	
R33 13	CRT1/10-103F	1/10W 10K	1	
R33	CRT1/10-202F	1/10W 2K	1	
R33 04	CRT1/10-202F	1/10W 2K	1	
R33 06	CRT1/10-202F	1/10W 2K	1	
R33 05	CRT1/10-202F	1/10W 2K	1	
R33 03	CRT1/10-202F	1/10W 2K	1	
R33 02	CRT1/10-202F	1/10W 2K	1	
R34 07	CRT1/10-103F	1/10W 10K	1	
R34 13	CRT1/10-103F	1/10W 10K	1	
R34 12	CRT1/10-103F	1/10W 10K	1	
R34 11	CRT1/10-103F	1/10W 10K	1	
R34 10	CRT1/10-103F	1/10W 10K	1	
R34 09	CRT1/10-103F	1/10W 10K	1	
R34 08	CRT1/10-103F	1/10W 10K	1	
R34	CRT1/10-202F	1/10W 2K	1	
R34 03	CRT1/10-202F	1/10W 2K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R34 04	CRT1/10-202F	1/10W 2K	1	
R34 05	CRT1/10-202F	1/10W 2K	1	
R34 06	CRT1/10-202F	1/10W 2K	1	
R34 02	CRT1/10-202F	1/10W 2K	1	
R35 07	CRT1/10-103F	1/10W 10K	1	
R35 09	CRT1/10-103F	1/10W 10K	1	
R35 08	CRT1/10-103F	1/10W 10K	1	
R35 10	CRT1/10-103F	1/10W 10K	1	
R35 13	CRT1/10-103F	1/10W 10K	1	
R35 12	CRT1/10-103F	1/10W 10K	1	
R35 11	CRT1/10-103F	1/10W 10K	1	
R35	CRT1/10-512F	1/10W 5.1K	1	
R35 06	CRT1/10-512F	1/10W 5.1K	1	
R35 05	CRT1/10-512F	1/10W 5.1K	1	
R35 02	CRT1/10-512F	1/10W 5.1K	1	
R35 03	CRT1/10-512F	1/10W 5.1K	1	
R35 04	CRT1/10-512F	1/10W 5.1K	1	
R36 07	CRT1/10-103F	1/10W 10K	1	
R36 09	CRT1/10-103F	1/10W 10K	1	
R36 12	CRT1/10-103F	1/10W 10K	1	
R36 11	CRT1/10-103F	1/10W 10K	1	
R36 10	CRT1/10-103F	1/10W 10K	1	
R36 08	CRT1/10-103F	1/10W 10K	1	
R36 13	CRT1/10-103F	1/10W 10K	1	
R36	CRT1/10-122F	1/10W 1.2K	1	
R36 03	CRT1/10-122F	1/10W 1.2K	1	
R36 05	CRT1/10-122F	1/10W 1.2K	1	
R36 06	CRT1/10-122F	1/10W 1.2K	1	
R36 04	CRT1/10-122F	1/10W 1.2K	1	
R36 02	CRT1/10-122F	1/10W 1.2K	1	
R37 07	CRT1/10-103F	1/10W 10K	1	
R37 08	CRT1/10-103F	1/10W 10K	1	
R37 13	CRT1/10-103F	1/10W 10K	1	
R37 12	CRT1/10-103F	1/10W 10K	1	
R37 11	CRT1/10-103F	1/10W 10K	1	
R37 10	CRT1/10-103F	1/10W 10K	1	
R37 09	CRT1/10-103F	1/10W 10K	1	
R37	CRT1/8-201F	1/8W 200 OHM	1	
R37 02	CRT1/8-201F	1/8W 200 OHM	1	
R37 04	CRT1/8-201F	1/8W 200 OHM	1	
R37 05	CRT1/8-201F	1/8W 200 OHM	1	
R37 06	CRT1/8-201F	1/8W 200 OHM	1	
R37 03	CRT1/8-201F	1/8W 200 OHM	1	
R38 07	CRT1/10-103F	1/10W 10K	1	
R38	CRT1/10-202F	1/10W 2K	1	
R38 05	CRT1/10-202F	1/10W 2K	1	
R38 06	CRT1/10-202F	1/10W 2K	1	
R38 04	CRT1/10-202F	1/10W 2K	1	
R38 02	CRT1/10-202F	1/10W 2K	1	
R38 03	CRT1/10-202F	1/10W 2K	1	
R39	CRT1/10-103F	1/10W 10K	1	
R39 04	CRT1/10-103F	1/10W 10K	1	
R39 06	CRT1/10-103F	1/10W 10K	1	
R39 07	CRT1/10-103F	1/10W 10K	1	
R39 05	CRT1/10-103F	1/10W 10K	1	
R39 03	CRT1/10-103F	1/10W 10K	1	
R40	CRT1/10-103F	1/10W 10K	1	
R40 03	CRT1/10-103F	1/10W 10K	1	
R40 05	CRT1/10-103F	1/10W 10K	1	
R40 07	CRT1/10-103F	1/10W 10K	1	
R40 06	CRT1/10-103F	1/10W 10K	1	
R40 04	CRT1/10-103F	1/10W 10K	1	
R41	CRT1/10-103F	1/10W 10K	1	
R41 03	CRT1/10-103F	1/10W 10K	1	
R41 04	CRT1/10-103F	1/10W 10K	1	
R41 06	CRT1/10-103F	1/10W 10K	1	
R41 07	CRT1/10-103F	1/10W 10K	1	
R41 05	CRT1/10-103F	1/10W 10K	1	
R42	CRT1/10-103F	1/10W 10K	1	
R42 03	CRT1/10-103F	1/10W 10K	1	
R42 04	CRT1/10-103F	1/10W 10K	1	
R42 05	CRT1/10-103F	1/10W 10K	1	
R42 07	CRT1/10-103F	1/10W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R42 06	CRT1/10-103F	1/10W 10K	1	
R43	CRT1/10-103F	1/10W 10K	1	
R43 07	CRT1/10-103F	1/10W 10K	1	
R43 02	CRT1/10-103F	1/10W 10K	1	
R43 04	CRT1/10-103F	1/10W 10K	1	
R43 05	CRT1/10-103F	1/10W 10K	1	
R43 06	CRT1/10-103F	1/10W 10K	1	
R44	CRT1/10-103F	1/10W 10K	1	
R44 07	CRT1/10-103F	1/10W 10K	1	
R44 06	CRT1/10-103F	1/10W 10K	1	
R44 02	CRT1/10-103F	1/10W 10K	1	
R44 03	CRT1/10-103F	1/10W 10K	1	
R44 05	CRT1/10-103F	1/10W 10K	1	
R45	CRT1/10-103F	1/10W 10K	1	
R45 06	CRT1/10-103F	1/10W 10K	1	
R45 07	CRT1/10-103F	1/10W 10K	1	
R45 05	CRT1/10-103F	1/10W 10K	1	
R45 02	CRT1/10-103F	1/10W 10K	1	
R45 03	CRT1/10-103F	1/10W 10K	1	
R46	CRT1/10-103F	1/10W 10K	1	
R46 05	CRT1/10-103F	1/10W 10K	1	
R46 07	CRT1/10-103F	1/10W 10K	1	
R46 06	CRT1/10-103F	1/10W 10K	1	
R46 04	CRT1/10-103F	1/10W 10K	1	
R46 02	CRT1/10-103F	1/10W 10K	1	
R47	CRT1/10-103F	1/10W 10K	1	
R47 04	CRT1/10-103F	1/10W 10K	1	
R47 06	CRT1/10-103F	1/10W 10K	1	
R47 07	CRT1/10-103F	1/10W 10K	1	
R47 05	CRT1/10-103F	1/10W 10K	1	
R47 03	CRT1/10-103F	1/10W 10K	1	
R48	CRT1/10-103F	1/10W 10K	1	
R48 03	CRT1/10-103F	1/10W 10K	1	
R48 05	CRT1/10-103F	1/10W 10K	1	
R48 06	CRT1/10-103F	1/10W 10K	1	
R48 04	CRT1/10-103F	1/10W 10K	1	
R48 02	CRT1/10-103F	1/10W 10K	1	
R48 07	CRT1/8-270F	1/8W 27	1	
R49	CRT1/10-103F	1/10W 10K	1	
R49 03	CRT1/10-103F	1/10W 10K	1	
R49 04	CRT1/10-103F	1/10W 10K	1	
R49 06	CRT1/10-103F	1/10W 10K	1	
R49 05	CRT1/10-103F	1/10W 10K	1	
R49 02	CRT1/10-103F	1/10W 10K	1	
R49 07	CRT1/8-270F	1/8W 27	1	
R50	CRT1/10-103F	1/10W 10K	1	
R50 03	CRT1/10-103F	1/10W 10K	1	
R50 04	CRT1/10-103F	1/10W 10K	1	
R50 05	CRT1/10-103F	1/10W 10K	1	
R50 06	CRT1/10-103F	1/10W 10K	1	
R50 02	CRT1/10-103F	1/10W 10K	1	
R50 07	CRT1/10-152F	1/10W 1.5K	1	
R52	CRT1/10-103F	1/10W 10K	1	
R53	CRT1/10-222F	1/10W 2200	1	
R54	CRT1/10-104F	1/10W 100K	1	
R56	CRT1/10-R00J	1/10W 0	1	
R57	CRT1/10-471F	1/10W 470	1	
R58	CRT1/10-104F	1/10W 100K	1	
R59,60	CRT1/10-202F	1/10W 2K	2	
R61	CRT1/10-103F	1/10W 10K	1	
R62-64	CRT1/10-104F	1/10W 100K	3	
R65,66	CRT1/8-201F	1/8W 200 OHM	2	
R67	CRT1/8-151F	1/8W 150	1	
R68	CRT1/10-R00J	1/10W 0	1	
RTL	G541K1TD01	CIRCUIT BOARD YPHOTO-1	1	△
RTL	G541K1TD02	CIRCUIT BOARD YPHOTO-2	1	△
RTL	G541K1TD03	CIRCUIT BOARD XPHOTO-4	1	△
RTL	G541K1TD04	CIRCUIT BOARD XPHOTO-3	1	△

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
RTL	G541K1TD05	CIRCUIT BOARD XPHOTO-2	1	△
RTL	G541K1TD06	CIRCUIT BOARD XPHOTO-1	1	△
RTL	G541K1TD07	CIRCUIT BOARD YLED-2	1	△
RTL	G541K1TD08	CIRCUIT BOARD YLED-1	1	△
ERL	G541K1TD09	CIRCUIT BOARD XLED-1	1	△
RTL	G541K1TD10	CIRCUIT BOARD XLED-2	1	△
RTL	G541K1TD11	CIRCUIT BOARD XLED-3	1	△
RTL	G541K1TD12	CIRCUIT BOARD XLED-4	1	△
RTL	G541K1TD13	CIRCUIT BOARD CONTROLLER	1	△
RTL	G541K1TD14	CIRCUIT BOARD PEN-RECEIVE	1	△
SW1	GW-12LCVM	SWITCH	1	
U1 13	MB3773PF-F	IC	1	
U1	TC74HC138A-F	IC	1	
U1 02	TC74HC138A-F	IC	1	
U1 03	TC74HC138A-F	IC	1	
U1 04	TC74HC138A-F	IC	1	
U1 05	TC74HC138A-F	IC	1	
U1 06	TC74HC138A-F	IC	1	
U1 07	TC74HC138AF	IC	1	
U1 08	TC74HC138AF	IC	1	
U1 09	TC74HC138AF	IC	1	
U1 10	TC74HC138AF	IC	1	
U1 11	TC74HC138AF	IC	1	
U1 12	TC74HC138AF	IC	1	
U2	TC74HC138A-F	IC	1	
U2 02	TC74HC138A-F	IC	1	
U2 03	TC74HC138A-F	IC	1	
U2 05	TC74HC138A-F	IC	1	
U2 06	TC74HC138A-F	IC	1	
U2 04	TC74HC138A-F	IC	1	
U2 07	TC74HC138AF	IC	1	
U2 12	TC74HC138AF	IC	1	
U2 09	TC74HC138AF	IC	1	
U2 10	TC74HC138AF	IC	1	
U2 08	TC74HC138AF	IC	1	
U2 11	TC74HC138AF	IC	1	
U3 13	HD64F3067-F	IC(CPU)	1	
U3 07	TC74HC138AF	IC	1	
U3 12	TC74HC138AF	IC	1	
U3 08	TC74HC138AF	IC	1	
U3 09	TC74HC138AF	IC	1	
U3 11	TC74HC138AF	IC	1	
U3 10	TC74HC138AF	IC	1	
U3	TC7W53FK-F	IC	1	
U3 05	TC7W53FK-F	IC	1	
U3 06	TC7W53FK-F	IC	1	
U3 04	TC7W53FK-F	IC	1	
U3 02	TC7W53FK-F	IC	1	
U3 03	TC7W53FK-F	IC	1	
U4 07	TC74HC138AF	IC	1	
U4 11	TC74HC138AF	IC	1	
U4 08	TC74HC138AF	IC	1	
U4 09	TC74HC138AF	IC	1	
U4 10	TC74HC138AF	IC	1	
U4 12	TC74HC238AF	IC	1	
U4	TC74HC4051AF	IC	1	
U4 04	TC74HC4051AF	IC	1	
U4 06	TC74HC4051AF	IC	1	
U4 05	TC74HC4051AF	IC	1	
U4 03	TC74HC4051AF	IC	1	
U4 02	TC74HC4051AF	IC	1	
U4 13	TC74HC541AF	IC	1	
U5 07	TC74HC238AF	IC	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
U5 08	TC74HC238AF	IC	1	
U5 09	TC74HC238AF	IC	1	
U5 11	TC74HC238AF	IC	1	
U5 10	TC74HC238AF	IC	1	
U5 13	TC74HC541AF	IC	1	
U5 12	TC7W53FK-F	IC	1	
U5	UPC842G2	LINEAR IC	1	
U5 05	UPC842G2	LINEAR IC #	1	
U5 06	UPC842G2	LINEAR IC	1	
U5 04	UPC842G2	LINEAR IC #	1	
U5 02	UPC842G2	LINEAR IC	1	
U5 03	UPC842G2	LINEAR IC #	1	
U6	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 04	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 06	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 05	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 12	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 03	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 02	TC74HC4053AF	MOS IC (CMOS S/LOGIC) *	1	
U6 07	TC7W53FK-F	IC	1	
U6 08	TC7W53FK-F	IC	1	
U6 10	TC7W53FK-F	IC	1	
U6 11	TC7W53FK-F	IC	1	
U6 09	TC7W53FK-F	IC	1	
U7 07	BR93L46RF	IC	1	
U7	UPC842G2	LINEAR IC	1	
U7 03	UPC842G2	LINEAR IC #	1	
U7 02	UPC842G2	LINEAR IC	1	
U7 04	UPC842G2	LINEAR IC #	1	
U7 06	UPC842G2	LINEAR IC	1	
U7 05	UPC842G2	LINEAR IC #	1	
U8 07	FT232BL	IC	1	
U8	TC74HC238AF	IC	1	
U8 06	TC74HC238AF	IC	1	
U8 03	TC74HC238AF	IC	1	
U8 04	TC74HC238AF	IC	1	
U8 02	TC74HC238AF	IC	1	
U9	TC74HC238AF	IC	1	
U9 05	TC74HC238AF	IC	1	
U9 04	TC74HC238AF	IC	1	
U9 02	TC74HC238AF	IC	1	
U9 03	TC74HC238AF	IC	1	
U9 06	TC7W02FK-F	IC	1	
U10	MB3842PFV-F	IC	1	
U11	MAX202CSE+TL	IC	1	
U12	PIC12F629-F	IC	1	
XTAL1	PBRC20.00HR	20.00MHZ	1	
XTAL2	PBRC6.00HR	6.00MHZ	1	